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Simple tools and techniques for enterprise risk management

ROBERT J. CHAPMAN

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Robert J. Chapman



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To Ranko Bon, an individual with clarity of thought
and exceptional interpersonal skills.

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Preface

AUDIENCE

This book is written for a number of audiences: the competent practitioners who may be looking to broaden their approach; board members; non-executive directors who want to become more familiar with the processes and concepts of enterprise risk management; company risk directors; project risk management practitioners wishing to extend their skills; business analysts; change agents; and graduate and undergraduate students. Different parts of the book are aimed at different audiences as described below.

BOOK OVERVIEW

The book is composed of five parts. The target audience is different for each part.

Part I “Enterprise Risk Management in Context” sets out the impetus behind enterprise risk management and describes corporate governance in the UK and overseas. It explains the relationship between corporate governance, internal control and risk management, and reviews the development in risk management in the private sector. It is aimed at all audiences to set the scene and is particularly focused towards the CEO, non-executive directors and the board in general.

Part II “The Appointment” is composed of four chapters. Chapter 6 describes a tendering process on behalf of clients who want to go through a formal auditable process where price is of particular importance. Chapters 7, 8 and 9 describe, from a consultant’s perspective, the interview process with a prospective sponsor, the preparation of a proposal and implementation of an assignment post-appointment, respectively. Hence Part 2 is largely for the benefit of risk practitioners.

Part III “The Risk Management Process” is composed of six chapters and each chapter describes a stage within the overall risk management process. Part 3 explains the activities to perform risk management using a standard process definition notation. Process goals, inputs, outputs, mechanisms and controls are fully explained for each stage. Tools and techniques are described to accomplish the individual stages. This part is specifically aimed at risk practitioners, chief risk officers, audit committees and business risk managers.

Part IV “Internal Influences – Micro Factors” describes the three sources of risk considered to be controllable (to a degree) by businesses, labelled in this text as Financial, Operational and

Technological. This part is aimed at the audit committee, business risk managers, department heads and risk management practitioners.

Part V “External Influences – Macro Factors” describes the six sources of risk considered to be uncontrollable by businesses labelled in this text as Economic, Environmental, Legal, Political, Market and Social. This part is aimed at all audiences from the CEO through to the student. These chapters describe the complex world we live in, its changing nature, and those aspects of the environment, in its fullest sense, that may pose threats and upside opportunities to business performance. It is aimed at all those wishing to understand the external influences on businesses today.

HOW TO READ THIS BOOK

Time is precious. How much time do we ever have in any one day to reflect on how we do things and whether there is a better approach? Time between deadlines is commonly short, offering limited opportunity for quiet reflection. Hence this book is purposefully written in such a way that it is hoped that readers can quickly find and focus on the subjects that interest them, rather than having to carry out an extensive search for the instructive guidance they seek.

The appropriate approach to reading this book will depend on your exposure and experience of risk management and where your specific interests lie.

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Part I

Enterprise Risk Management in Context

Introduction

Providing strategic direction for a business means understanding what drives the creation of value and what destroys it. This in turn means the pursuit of opportunities must entail comprehension of the risks to take and the risks to avoid. Hence to grow any business entails risk judgement and risk acceptance. A business's ability to prosper in the face of risk, at the same time as responding to unplanned events, good or bad, is a prime indicator of its ability to compete. However, risk exposure is becoming greater, more complex, diverse and dynamic. This has arisen in no small part from rapid changes in technology, speed of communication, globalisation of business and the rate of change within markets. Businesses now operate in an entirely different environment compared with just 10 years ago. The source of risk can also come from within, as businesses strive for growth. The adoption of expansion strategies, such as acquisition, investment in emerging markets, major organisational restructuring, outsourcing key processes, major capital investment projects and developing significant new products, can all increase a business's risk exposure. A recent review of risk management practices in 14 large global corporations revealed that by the end of the 1990s, the range of risks that companies felt they needed to manage had vastly expanded, and was continuing to grow in number (Hunt 2001). There are widespread concerns over e-commerce, which has become accepted and embedded in society with startling speed. The Economist Intelligence Unit (EIU) survey "Enterprise Risk Management, implementing new solutions" highlighted:

Many companies perceive a rise in the number and severity of the risks they face. Some industries confront unfamiliar risks stemming from deregulation. Others worry about increasing dependence on business-to-business information systems and just-in-time supply/inventory systems. And everyone is concerned about emerging risks of e-business – from online security to customer privacy. (Economic Intelligence Unit 2001)

As a consequence of the diversity of risk, risk management requires a broader approach. This sentiment was echoed by Rod Eddington, former CEO of British Airways, who remarked that businesses now require a broader perspective of risk management. He went to say that:

If you talked to people in the airline industry in the recent past, they very quickly got on to operational risk. Of course, today we think of risk as the whole of business. We think about risk across the full spectrum of the things we do, not just operational things. We think of risk in the context of business risks, whether they are risks around the systems we use, whether they are risks around fuel hedging, whether they're risks around customer service values. If you ask any senior airline person today about risk, I would hope they would move to risk in the true, broader sense of the term. (McCarthy and Flynn 2004)

All stakeholders and regulators are pressing boards of directors to manage risk more comprehensively, rigorously and systematically. Companies that treat risk management as just a compliance issue expose themselves to nursing a damaged balance sheet.

1.1 APPROACH TO RISK MANAGEMENT

This evolving nature of risk and expectations about its management have now put pressure on previous working practices. Historically, within both private and public organisations, risk management has traditionally been segmented and carried out in “silos”. This has arisen for a number of reasons such as the way our mind works in problem solving, the structure of business organisations and the evolution of risk management practice. There is clearly the tendency to want to compartmentalise risks into distinct, mutually exclusive categories and this would appear to be as a result of the way we subdivide problems to manage them, the need to allocate tasks within an existing organisational structure and the underlying assumption that the consequences of an unforeseen event will more or less be confined to one given area. In actuality, the fallout from unforeseen events tends to affect multiple business areas and the interrelationships between risks under the categories of operational, financial and technical risk have been overlooked, often with adverse outcomes. Pattie Dunn, vice chairman of Barclays Global Investors and a member of the board of Hewlett-Packard, says:

I think what Boards tend to miss and what management tends to overlook is the need to address risk holistically. They overlook the areas that connect the dots because risk is defined so “atomistically” and we don’t have the perspective and the instrument panel that allows us to see risk in a 360 degree way. (McCarthy and Flynn 2004)

Enterprise Risk Management (ERM) is a response to the sense of inadequacy in using a silo-based approach to manage increasingly interdependent risks. The discipline of ERM, sometimes referred to as strategic business risk management, is seen as a more robust method of managing risk and opportunity and an answer to these business pressures. ERM is designed to improve business performance. It is a relatively new approach, whereby risks are managed in a coordinated and integrated way across an entire business. The approach is less to do with any bold breakthrough in thinking, but more to do with the maturing, continuing growth and evolution of the profession of risk management and its application in a structured and disciplined way (McCarthy and Flynn 2004). It is about understanding the interdependencies between the risks, how the materialisation of a risk in one business area may increase the impact of risks in another business area. In consequence it is also about how risk mitigation action can address multiple risks spanning multiple business sectors. It is the illustration of this integrated approach that is the focus of this book.

1.2 BUSINESS GROWTH THROUGH RISK TAKING

Risk is inescapable in business activity. As Peter Drucker explained as far back as the 1970s, economic activity by definition commits present resources to an uncertain future. For the one thing that is certain about the future, is its uncertainty, its risks. Hence to take risks is the essence of economic activity. He considers that history has shown that businesses yield greater economic performance only through greater uncertainty. Or in other words, through greater risk taking (Drucker 1977).

Nearly all operational tasks and processes are now viewed through the prism of risk (Hunt 2001). Indeed the term “risk” has become shorthand for any corporate activity. It is thought not possible to “create a business that doesn’t take risks” (Boulton *et al.* 2000). The end result of successful strategic direction setting must be capacity to take a greater risk, for this is the only way to improve entrepreneurial performance. However, to extend this capacity, businesses

must understand the risks that they take. While in many instances it is futile to try to eliminate risk, and commonly only possible to reduce it, it is essential that the risks taken are the right risks. Businesses must be able to choose rationally among risk-taking courses of action, rather than plunge into uncertainty, on the basis of a hunch, gut feel, hearsay or experience, no matter how carefully quantified. Quite apart from the arguments for risk management being a good thing in its own right, it is becoming increasingly rare to find an organisation of any size whose stakeholders are not demanding that its management exhibit risk management awareness. This is now a firmly held view supported by the findings of the Economist Intelligence Unit's enterprise risk management survey, referred to earlier. It discovered that 84% of the executives that responded considered ERM could improve their price/earnings ratio and cost of capital. Organisations which are more risk conscious have for a long time known that actively managing risk and opportunity provides them with a decisive competitive advantage. Taking and managing risk is the essence of business survival and growth.

1.3 RISK AND OPPORTUNITY

There should not be a preoccupation with downside risk. Risk management of both upside risks (opportunities) and downside risks (threats) is at the heart of business growth and wealth creation. Once a board has determined its vision, mission and values, it must set its corporate strategy, its method of delivering the business's vision. Strategy setting is about strategic thinking. Setting the strategy is about directing, showing the way ahead and giving leadership. It is being thoughtful and reflective. Whatever this strategy is, however, the board must decide what opportunities, present and future, it wants to pursue and what risks it is willing to take in developing the opportunities selected. Risk and opportunity management must receive equal attention and it is important for boards to choose the right balance. This is succinctly expressed by the National Audit Office who state: "a business risk management approach offers the possibility for striking a judicious and systematically argued balance between risk and opportunity in the form of the contradictory pressures for greater entrepreneurialism on the one hand and limitation of downside risks on the other" (National Audit Office 2000). An overemphasis on downside risks and their management can be harmful to any business.

Knight and Petty stress that risk management is about seeking out the upside risks or opportunities. That getting rid of risk stifles the source of value creation and upside potential (Knight and Petty 2001). Any behaviour that attempts to escape risk altogether will lead to the least rational decision of all, doing nothing. While risks are important, as all businesses face risk from inception, they are not grounds for action but restraints on action. Hence risk management is about controlling risk as far as possible to enable a business to maximise its opportunities. Development of a risk policy should be a creative initiative, exposing exciting opportunities for value growth and innovative handling of risk, not a depressing task, full of reticence, warning and pessimism (Knight and Petty 2001). ERM then is about managing both opportunities and risks.

1.4 THE ROLE OF THE BOARD

Jay Keyworth, chairman of the Progress and Freedom Foundation and a member of Hewlett-Packard's board, has stated that the most important lesson of the last few years is that board members can no longer claim impunity from a lack of knowledge about business risk. The message here is that when something goes wrong as inevitably it does, board members will

be held accountable. The solution is for board members to learn of the potential for adverse events and be sufficiently aware of the sources of risk within the area of business that they are operating in, to be afforded the opportunity to take pre-emptive action (McCarthy and Flynn 2004). The business of risk management is undergoing a fundamental sea change with the discipline of risk management converging at the top of the organisation and being more openly discussed in the same breath as strategy and protection of shareholders. Greater risk taking requires more control. Risk control is viewed as essential to maintaining stability and continuity in the running of businesses. However, in the aftermath of a series of unexpected risk management failures leading to company collapses and other corporate scandals in the UK, investors have expressed concerns about the low level of confidence in financial reporting, board oversight of corporate operations, in the safeguards provided by external auditors and in the degree of risk management control. These concerns led to a cry for greater corporate governance, which led to a series of reports on governance and internal control culminating in the Combined Code of Corporate Governance (2003). The incremental development of corporate governance is discussed in Chapter 2. Clearly risk exposure was growing from an increasingly chaotic and turbulent world. The lack of risk management control resided with the board.

In 1995 in response to bad press about boards' poor performance and the lack of adequate corporate governance, the Institute of Directors published *Standards for the Board*. It is proving to be a catalyst for the debate on the roles and tasks of a board and on the need to link training and assessed competence with membership of directors' professional bodies. The publication clearly lays out four main tasks for directors:

1. The board must simultaneously be entrepreneurial and drive the business forward while keeping it under prudent control.
2. The board is required to be sufficiently knowledgeable about the workings of the company and answerable for its actions, and yet to stand back from the day-to-day management and retain an objective, longer-term view.
3. The board must be sensitive to the short-term, local issues and yet be informed of the broader trends and competition, often of an international nature.
4. The board is expected to be focused on the commercial needs of the business, while acting responsibly towards its employees, business partners and society as a whole.

The task for boards of course is to ensure the effectiveness of their risk model. With this in mind, here are some action items for the strategic risk management agenda for boards and CEOs to consider:

- Appoint a C-level risk leader empowered not only with the responsibility, but with the authority to act on all risk management matters.
- Ensure that this leader is independent and can work objectively with the company's external advisers (external audit, legal etc.) and the governing decision maker and oversight function (the CEO and board).
- Be satisfied as to the adequacy of the depth of current risk analysis actions, from an identification, assessment and mitigation standpoint.
- Be confident that the risk management information board members receive is accurate, timely, clear and relevant.

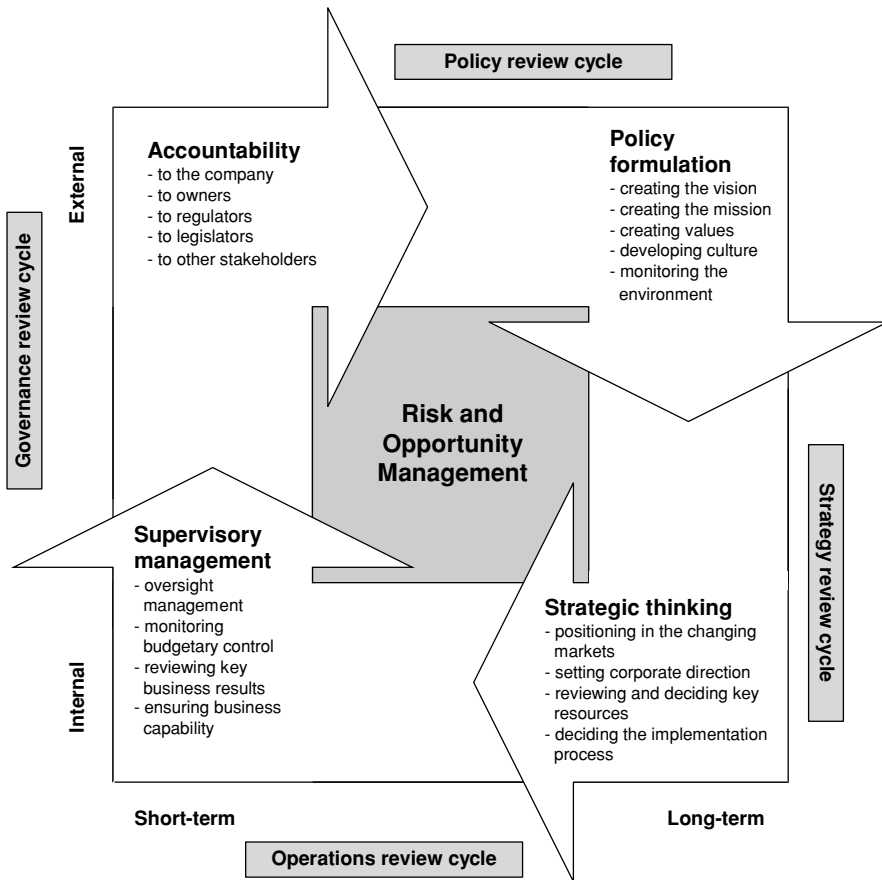


Figure 1.1 The role of the board and the integration of risk management. (Adapted from Garratt (2003)) Reproduced with permission from *The Fish Rots from the Head*, B. Garratt, Profile Books Ltd.

- Actively require and participate in regular dialogue with key stakeholders to understand if their objectives have been captured, debated and aligned, are being met and whether stakeholders may derail current initiatives.
- Strive to build a culture where risk management and strategic planning are intertwined.
- Ensure risk management remains focused on the most serious issues.
- Ensure risk management is embedded throughout the organisation.

As illustrated in Figure 1.1, risk and opportunity impinges on the four main functions of boards: policy formulation, strategic thinking, supervisory management and accountability. Policy formulation involves setting the culture for the organisation which should include risk management; strategic thinking entails selecting markets to pursue and commit resources to those markets on the strength of the risk profile prepared; supervisory management requires businesses to put in place oversight management and governance processes including formal risk management processes. Accountability relates to ensuring that risk mitigation actions have clear owners who are charged with implementing pre-agreed actions to address the risks identified, report changes in risk profiles and engage in ongoing risk management.

1.5 PRIMARY BUSINESS OBJECTIVE (OR GOAL)

The primary objective of a business is *shareholder wealth maximisation*, that is, to maximise the *wealth* of its shareholders (owners). In a market economy, the shareholders will provide funds to a business in the expectation that they will receive the maximum possible increase in *wealth* for the level of risk which must be faced. When evaluating competing investment opportunities, therefore, the shareholders will weigh the returns from each investment against the potential risks involved. The use of term *wealth* here refers to the market value of the ordinary shares. The market value of the shares will in turn reflect the future returns the shareholders will expect to receive over time from the shares and the level of risk involved. Shareholders are typically not concerned with returns over the short term, but are concerned with achieving the highest possible returns over the long term. Profit maximisation is often suggested as an alternative objective for a business. Profit maximisation is different from wealth maximisation. Profit maximisation is usually seen as a short-term objective whereas wealth maximisation is a long-term objective. Wealth maximisation takes account of risks to long-term growth, whereas profit maximisation does not.

1.6 WHAT IS ENTERPRISE RISK MANAGEMENT (ERM)

ERM has to satisfy a series of parameters. It must be embedded in a business's system of internal control, while at the same time it must respect, reflect and respond to the other internal controls. Enterprise risk management is about protecting and enhancing share value to satisfy the primary business objective of *shareholder wealth maximisation*. It must be multifaceted, addressing all aspects of the business plan from the strategic plan through to the business controls:

- strategic plan
- marketing plan
- operations plan
- research and development
- management and organisation
- forecasts and financial data
- financing
- risk management processes
- business controls

Enterprises operating in today's environment are characterised by constant change and require a more integrated approach to manage their risk exposure. This has not always been the case, with risks being managed in "silos". Economic, legal, commercial and personnel risks were treated separately and often addressed by different individuals within a company without any cross-referencing of the risks or an understanding of the impact of management actions adopted for one subject group on another subject group. Risks are, by their very nature, dynamic, fluid and highly interdependent. As such they cannot be evaluated or managed independently.

Largely reflecting the COSO (2004) definition, enterprise risk management may be defined as:

a systematic process embedded in a company's system of internal control (spanning all business activity), to satisfy policies effected by its board of directors, aimed at fulfilling its business objectives and safeguarding both the shareholder's investment and the company's assets. The purpose of

this process is to manage and effectively control risk appropriately (without stifling entrepreneurial endeavour) within the company's overall risk appetite. The process reflects the nature of risk, which does not respect artificial departmental boundaries and manages the interdependencies between the risks. Additionally the process is accomplished through regular reviews, which are modified when necessary to reflect the continually evolving business environment.

Hence in summary, enterprise risk management may be defined as “a comprehensive and integrated framework for managing company-wide risk in order to maximise a company's value”.

1.7 BENEFITS OF ERM

No risk management process can create a risk-free environment. Rather enterprise risk management enables management to operate more effectively in a business environment filled with fluctuating risks.

Enterprise risk management provides enhanced capability to:

- *Align risk appetite and strategy*: Risk appetite is the degree of risk, on a broad-based level, that a business is willing to accept in pursuit of its objectives. Management considers the business's risk appetite first in evaluating strategic alternatives, then in setting boundaries for downside risk.
- *Minimise operational surprises and losses*: Businesses have enhanced capability to identify potential risk events, assess risks and establish responses, thereby reducing the occurrence of unpleasant surprises and associated costs or losses.
- *Enhance risk response decisions*: ERM provides the rigour to identify and select among alternative risk responses – risk removal, reduction, transfer or acceptance.
- *Resources*: A clear understanding of the risks facing a business can enhance the effective direction and use of management time and the business's resources to manage risk.
- *Identify and manage cross-enterprise risks*: Every business faces a myriad of risks affecting different parts of the organisation. The benefits of enterprise risk management are only optimised when an enterprise-wide approach is adopted, integrating the disparate approaches to risk management within a company. Integration has to be effected in three ways: centralised risk reporting, the integration of risk transfer strategies and the integration of risk management into the business processes of a business. Rather than being purely a defensive mechanism, it can be used as a tool to maximise opportunities.
- *Link growth, risk and return*: Business's accept risk as part of wealth creation and preservation and they expect return commensurate with risk. ERM provides an enhanced ability to identify and assess risks and establish acceptable levels of risk relative to potential growth and achievement of objectives.
- *Rationalise capital*: More robust information on risk exposure allows management to more effectively assess overall capital needs and improve capital allocation.
- *Seize opportunities*: The very process of identifying risks can stimulate thinking and generate opportunities as well as threats. Responses need to be developed to seize these opportunities in the same way that responses are required to address identified threats to a business.

There are three major benefits of ERM: improved business performance, increased organisational effectiveness and better risk reporting.

1.8 FRAMEWORK

A framework for understanding ERM is included in Figure 1.2 and is composed of five elements.

1. Corporate governance is required to ensure that the board of directors and management have established the appropriate organisational processes and corporate controls to measure and manage risk across the business.
2. The creation and maintenance of a sound system of internal control is required to safeguard shareholder's investment and a business's assets.
3. A specific resource must be identified to implement the internal controls with sufficient knowledge and experience to derive the maximum benefit from the process.
4. A clear risk management process is required which sets out the individual processes, their inputs, outputs, constraints and enablers.
5. The value of a risk management process is reduced without a clear understanding of the sources of risk and how they should be responded to. The framework breaks the source of risk down into two key elements labelled internal processes and the business operating environment.

1.8.1 Corporate governance

Examination of recent developments in corporate governance reveals that they form catalysts for and contribute to the current pressures on ERM. It explains the expectations that shareholders have of boards of directors. It explains the approaches companies have adopted to risk management and the extent of disclosure of risk management practice. Corporate governance now forms an essential component of enterprise risk management because it provides the top-down monitoring and management of risk management. It places responsibility on the board

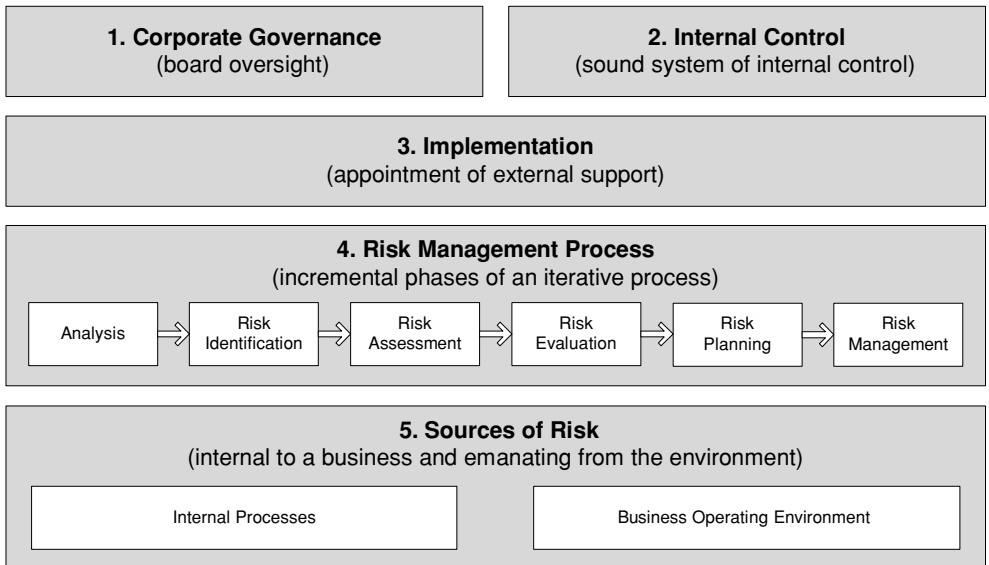


Figure 1.2 ERM framework

for ensuring that appropriate systems and policies for risk management are in place. Good board practices and corporate governance are crucial for effective ERM.

1.8.2 Internal control

Examination of internal controls provides an understanding of what should be controlled and how. There is more of a focus on formal approaches. Internal controls are a subset of corporate governance. Risk management is a subset of internal controls. Risk management is aimed at: facilitating the effective and efficient operation of a business, improving internal and external reporting and assisting with compliance with laws and regulations. The aim is to accomplish this through the identification and assessment of risks facing the business and responding to them to either remove or reduce them or where appropriate transfer them to a third party where it is economic to do so.

1.8.3 Implementation

Implementation of risk management (forming part of a business's internal control processes) can be resourced from within a business or be supported by external consultants. Both are clearly acceptable approaches. Whichever route is selected, the parameters of any study have to be mapped, communicated and agreed so that the timeframe, resources, costs, inputs and deliverables are understood.

1.8.4 Risk management process

A way of exploring the mechanisms for implementing a risk management process is to break it down into its component parts and examine what each part should contribute to the whole. It is proposed here that the risk management process is broken down into six processes called analysis, identification, assessment, evaluation, planning and management. While activities follow a largely sequential pattern, it may be a highly iterative process over time. For as new risks are identified, the earlier process of identification and assessment are revisited, and the sequential process is repeated through to the implementation of risk response actions.

1.8.5 Sources of risk

A way of examining the sources of business risk is to consider that it emanates from two quarters, from within a business (relating to the actions it takes) and from the environment within which it operates over which it has no control. Within Figure 1.2 above, these sources have been labelled "internal processes" and "business operating environment". They are a development of the traditional PEST analysis (an abbreviation for the external influences called political, economic, social and technological).

1.9 SUMMARY

All businesses in a free market are exposed to risk. This risk exposure exists from their inception. However, there would appear to be a swell of opinion that says risk is now more complex, diverse and dynamic. In particular, the source of risk is broader and the rate of change of the sources of risk has dramatically increased. The emergence of ERM has come about from

the desire and need to move away from managing risk in silos and identifying and managing risk interdependencies. This is not some startling new intellectual breakthrough but rather a practical solution to a practical problem. It is clear from surveys and the press that board members believe that ERM is important to business growth. Whatever strategy boards adopt they must decide what opportunities, present and future, they want to pursue and what risks they are willing to take in developing the opportunities selected. Hence whatever the approach businesses adopt for risk management, they must strike a judicious balance between risk and opportunity in the form of the contradictory pressures for greater entrepreneurialism on the one hand and the limitation of downside risks on the other. In the aftermath of a series of unexpected risk management failures leading to company collapses and other corporate scandals in the UK, boards are under greater scrutiny and expectations of corporate governance have significantly increased. Board members cannot distance themselves from risk management or believe that they will not be held to account. Risk management needs to be integrated with the primary activities of the board. There are a series of clearly recognised benefits of implementing risk management practice, when applied in a systematic and methodical way. A framework was described for examining ERM to understand the pressures for its development, its composition, implementation, the overall process and the sources of risk.

1.10 REFERENCES

- Boulton, R.E.S., Libert, B.D., and Samek, S.M. (2000) *Cracking the Value Code – How Successful Businesses are Creating Wealth in the New Economy*, Harper Business, New York.
- Combined Code on Corporate Governance (July 2003), Financial Reporting Council, CCH.
- COSO (2004) *Enterprise Risk Management – Integrated Framework*, September, published by the Committee of Sponsoring Organisations of the Treadway Commission.
- Drucker, P.F. (1977) *Management, an Abridged and Revised Version of Management: Tasks, Responsibilities, Practices*, first published in Great Britain 1979 by Pan Books Ltd, London, 7th printing, 1983.
- Economist Intelligence Unit (2001) “Enterprise Risk Management, implementing new solutions”.
- Hunt, B. (2001) “Issue of the Moment: The Rise and Rise of Risk Management”, in *Mastering Risk Volume 1: Concepts*, editor James Pickford, Pearson Education Ltd, UK.
- Garratt, R. (2003) *The Fish Rots from the Head. The Crisis in our Boardrooms: Developing the Crucial Skills of the Competent Director*, first published in 1996 by HarperCollinsBusiness. This revised and updated edition was published by Profile Books Limited, London.
- Knight, R.F. and Petty, D.J. (2001) “Philosophies of risk, shareholder value and the CEO”, in *Mastering Risk Volume 1: Concepts*, editor James Pickford, Pearson Education Ltd, UK.
- McCarthy, M.P. and Flynn, T.P. (2004) *Risk from the CEO and Board Perspective*, McGraw Hill, New York.
- National Audit Office (2000) “Supporting Innovation: Managing Risk in Government Departments”. Report by the Comptroller and Auditor General, 17 August, London, The Stationery Office.

Developments in Corporate Governance in the UK

The previous chapter examined what ERM is, its benefits and its components. This chapter looks at the drive behind improvements in ERM through examination of the incremental developments in corporate governance and their catalysts. The purpose of corporate governance is to ensure board oversight of business operations. For any business, governance means maintaining a sound system of internal control within its normal management and governance processes. Internal control is required to assist in: ensuring the reliability of internal and external reporting; compliance with laws and regulations; maintaining proper accounting records; and the appropriate management and control of risks. While the need for governance has always existed, corporate governance and particularly risk management has been seen to be inadequate in a number of high profile businesses that have collapsed. As a result, there has been pressure from investors for greater transparency of financial reporting and internal controls together with the broadening of directors' responsibilities to safeguard their interests, in terms of ensuring that financial controls and systems of risk management are robust and defensible. This chapter offers a definition of corporate governance to place internal controls and risk management in context. Chapter 3 examines the developments in corporate governance in the US and Canada.

2.1 INVESTOR UNREST

In the aftermath of a series of unexpected risk management failures leading to company collapses and other corporate scandals in the UK, investors expressed concerns about the low level of confidence in financial reporting, board oversight of corporate operations and the safeguards provided by external auditors. These concerns led to the adoption in early 1993 of the UK's first code of corporate governance: the Cadbury Code of Best Practice (Cadbury 1992). Similar initiatives were introduced overseas such as the Canadian Dey Report, published in 1994 (Dey 1994). Through a continuing process of revision and amendment, subsequent reports have broadened the focus of corporate governance. The collapse of Enron in the latter part of 2001, followed by other major corporate crises in the US and elsewhere, called into question the effectiveness of many of the established concepts of corporate governance. As a result, the adequacy of governance arrangements in the US, the UK and internationally, have all come under closer scrutiny. In the UK, this process has involved a wide-ranging review, leading to the introduction of a revised Combined Code on Corporate Governance in 2003 (Combined Code on Corporate Governance 2003). For ease of assimilation, the key reports, codes and guidance from Cadbury onwards are listed chronologically in Box 2.1 .

Box 2.1 Reports and codes

UK corporate governance guidance, reports and codes, listed chronologically:

| | |
|---------------------|----------------|
| • Cadbury Report | December 1992 |
| • Greenbury Report | July 1995 |
| • Hampel Code | June 1998 |
| • Turnbull | September 1999 |
| • Myners Review | March 2001 |
| • Smith Report | January 2003 |
| • Higgs Report | January 2003 |
| • Tyson Report | June 2003 |
| • The Combined Code | July 2003 |

2.2 THE PROBLEM OF AGENCY

One of the specific areas of investor disquiet emanated from the problem of agency. The function of a board in a listed company is to take responsibility for managing the company's business on behalf of its members or shareholders. Separation between membership and management has many advantages:

- decision making can be entrusted to those with the necessary skills and capacities leaving the members to enjoy the benefits of their association with the organisation, without needing to involve themselves in matters of detail;
- facilitates efficient aggregation and use of capital, by enabling the possessors of capital to invest in enterprise without requiring them to become involved in its operation; and
- allows responsibility for the strategic direction and control of business to be delegated to professional managers who (it is assumed) possess the required entrepreneurial skills and management expertise.

However, the separation between management and ownership within a UK listed company may create tensions between the interests of these parties. In listed companies, these tensions are known collectively as the "problem of agency" which is essentially the potential for conflicts of interest between the shareholders, the company's owners and its directors, as their agents. According to agency theory, the managers of the company, as rational beings, will seek to maximise their own well-being through their control of the company's resources. As a result, they are likely to pursue self-serving objectives, which will not necessarily be in the best interests of the shareholders. As Cooper (2004) describes, the problem of agency may manifest itself in board decisions that promote the interests of the directors but do not necessarily enhance the value of the company for the shareholders. Cooper cites examples of such decisions as being:

- pursuit of short-term share growth, where sustained investment in the company's asset base might produce long-term benefits for shareholders;
- inappropriate expansion or diversification of the company's activities into areas which involve unwarranted risks to shareholders' investments; or
- resistance by managers to mergers or takeovers which might threaten their own job security, but which may be in the best interests of the company's shareholders.

The problem of agency in listed companies can be exacerbated by the board's inability to control the supply of information to shareholders about the company's position and performance. In extreme cases this may result in shareholders and others being seriously misled. Two recent notorious examples concern the US energy corporation Enron and the Anglo-Dutch petrochemical company Shell. Enron's directors systematically overstated profits, failed to inform shareholders about risky financing arrangements and continued to declare the corporation's financial soundness until days before filing for bankruptcy protection. The directors of Shell, the world's third largest oil company, overstated the company's oil and gas reserves. The resultant dramatic fall in share price led to investor anger, which in turn led to the departure of three of Shell's top executives. The level of reserves was restated four times. The restatements prompted investigations by both UK and US authorities.

2.3 CADBURY COMMITTEE

The Cadbury Committee on the Financial Aspects of Corporate Governance, a private sector initiative, was set up in 1991 by the Financial Reporting Council (FRC), the London Stock Exchange and the accounting profession, in response to concerns about the low level of public confidence in financial reporting and in the safeguards provided by external auditors. The Committee report has come to be recognised as a landmark in thinking on corporate governance and was thought to strike a chord in many countries. As explained by the chairman of the committee, Adrian Cadbury, in the preface to the report, corporate governance had been the focus of public attention as a result of ongoing concerns about financial reporting, heightened by the events surrounding BCCI¹ and Maxwell² and the controversy over directors' pay. There was also concern over the composition of boards in relation to the balance of directors to non-executive directors. Some company boards had no non-executive directors (NEDs) at all and where NEDs were appointed, they were commonly outnumbered by executive directors. In addition, there was concern over the independence of NEDs as a result of their former role as executive directors of the same company, close connections with external advisers or major shareholders, or personal relationships with the chairman.

Section 1.3 of the report explained that at the heart of the Committee's recommendations was a Code of Best Practice "designed to achieve the necessary high standards of corporate behaviour". The Code of Best Practice, resulting from the Cadbury Committee's investigations, was appended to the Listing Rules³ in 1993. The Cadbury Code identified generic themes of

¹ The collapse of the Bank of Credit and Commerce International (BCCI) which operated in 60 countries, is ranked as one of the largest banking collapses of all time, when the bank was left owing more than £10bn (\$18bn) to its creditors. Thousands of depositors lost heavily when BCCI was wound up in 1991 amid accusations of money laundering and fraud. Those that lost included 28 UK local authorities, who had retained deposits in BCCI. The bank had lost money from its lending operations, its foreign currency dealings and its deposit accounts. It was reported that the bank was the bank of choice for money-launderers and terrorists, in that drug money from Colombia and Panama and funding for the Mujahideen in Pakistan and Abu Nidal in the Middle East, all flowed through the bank. The Bingham inquiry, which looked into the BCCI collapse in 1992, was critical of the role of the Bank of England. The BCCI affair is thought to have played a role in Mr Brown's decision on becoming Chancellor, to remove banking supervision from the remit of the Bank of England and place it with the Financial Services Authority (FSA) as the UK's new bank regulator. BBC news report: Tuesday, 13 January 2004, "Britain's Biggest Banking Scandal".

² Robert Maxwell died in mysterious circumstances at sea in 1991. Soon after his death it emerged that his empire was in serious financial difficulties and the Mirror Group pension fund was in deficit to the sum of £400m, leaving 32 000 pensioners fearing for their future financial security. Previously in 1980 Maxwell obtained a controlling interest in the British Printing Corporation plc, which was renamed the Maxwell Communication Corporation plc (MCC). By 1986, due to frenetic corporate expansion, the MCC became a FTSE 100 company. Maxwell ran his companies and the pension funds as if they were one. He moved assets between them as best suited his interests. Coopers & Lybrand, the auditors of nearly all of Maxwell's companies and their pension funds, were fined by the accounting profession's Joint Disciplinary Tribunal.

³ See Section 2.13.

abiding concern and has had a major impact on thinking about corporate governance across the corporate and public sectors, within and outside the UK. The key recommendations of the Cadbury Code were in four main areas:

The board of directors: To ensure that the board functions as an authoritative decision-making body, rather than a formal rubber stamp for executive decisions, the Code recommended that the full board meet regularly. In addition it should establish a formal schedule of matters including material acquisitions and disposals, capital projects and treasury and risk management policies, specifically for its collective decision.

Non-executive directors: The Cadbury Code provided the first formal definition of the role of NEDs. It suggested that in addition to their share in the strategic responsibilities of the board, they have explicit control and monitoring functions, which are distinct from the day-to day managerial responsibilities of their executive colleagues.

Executive directors: The Cadbury Code referred to the treatment of executive remuneration and drew attention to the potential for conflicts of interest between shareholders and directors on matters of pay, performance and job security. Accordingly it recommended that shareholder approval should be obtained for new service contracts in excess of three years and stated that executive pay should be subject to recommendations of a remuneration committee made up wholly or mainly of NEDs.

Reporting and controls: The Cadbury Code emphasised the board's obligation to present to shareholders a balanced and understandable assessment of the company's position. This should include a coherent narrative explanation of its performance and prospects, with details of setbacks as well as successes.

2.4 THE GREENBURY STUDY

The Greenbury Study Group on Directors' Remuneration was established in 1995 (Greenbury 1995) in response to public concern over apparently unjustified increases in the level of directors' remuneration, particularly in the then recently privatised utilities. The Study Group's remit was to establish good practice in determining directors' remuneration, particularly in the previously neglected area of performance-related pay. The resulting Code of Best Practice for directors' remuneration was annexed to the Listing Rules in 1995. The principal objectives of the Greenbury Code were to:

- prevent executive directors from setting or influencing their own remuneration;
- introduce greater rigour into the design of executive remuneration packages with particular regard to performance incentives and rewards; and
- improve accountability to shareholders.

2.5 THE HAMPEL COMMITTEE AND THE COMBINED CODE OF 1998

The Cadbury and Greenbury Codes operated concurrently until June 1998, when a new Combined Code of Best Practice was appended to the Listing Rules. The Combined Code (Hampel 1998) was based on the recommendations of a Committee on Corporate Governance

established in 1995 under the chairmanship of ICI chairman Sir Ronald Hampel. The committee's remit, which had been agreed with the Committee's sponsors (which included the LSE, CBI and IoD), focused on a review of the Cadbury Code and its implementation, the role of directors (executive and non-executive), the issues arising from the Study Group on Directors' Remuneration chaired by Sir Richard Greenbury and the role of both shareholders and auditors in corporate governance. Although intended primarily as an updating and consolidation of the two earlier codes (Cadbury and Greenbury), the Combined Code represented a considerable broadening of the scope and detail of directors' obligations, particularly in the areas of internal control and risk management, accountability to shareholders and the company's relations with institutional investors. The 1998 version of the Combined Code consisted of 17 Principles of Good Governance, 14 of which were addressed to listed companies and the remainder to institutional investors. Hampel made the point that they wanted to encourage the use of the broad principles of corporate governance and their application with flexibility and common sense, adapted to the specific circumstances of a business.

2.6 SMITH GUIDANCE ON AUDIT COMMITTEES

The Smith Report (Smith 2003) provides guidance (to all UK listed companies) to assist boards in making suitable arrangements for their audit committees and to assist directors serving on audit committees in carrying out their role. The guidance includes certain essential requirements that every audit committee should meet. These requirements are highlighted in bold in the text. Compliance with these is necessary for compliance with the Code. Listed companies that do not comply with these requirements are required to provide an explanation as to why they have not complied within the statement required by the Listing Rules. Section 1.4 of the guidance considers that boards should tailor their audit committee arrangements to suit the size, complexity and risk profile of the company. The audit committee is stated as having the role of acting independently from the executive, to ensure that the interests of shareholders are properly protected in relation to financial reporting and internal control. The report provides guidance on:

- the establishment and role of the audit committee, membership procedures and resources;
- relationship with the board;
- roles and responsibilities; and
- communication with shareholders.

2.7 HIGGS

In April 2002, Her Majesty's Treasury and the Department of Trade and Industry (DTI), concerned to improve the productivity performance of British industry, initiated a review of the role of the effectiveness of non-executive directors (NEDs) in publicly listed companies in the United Kingdom. The review was led by Derek Higgs (Higgs 2003), a respected investment banker and in the eyes of the sponsor, a senior independent figure from the business world. The review was motivated by the belief that stronger and more effective corporate boards could improve corporate performance. The Company Law Review for instance noted "a growing body of evidence from the US suggesting that companies with a strong contingent of non-executives produce superior performance". Higgs summarised the terms of reference of the review as building and publishing an accurate picture of the status quo, to lead a debate on the issues and to make recommendations to clarify the role and increase the effectiveness of non-executive directors. Examining Annex K of the review, which records the terms of

reference, the sponsors of the review, the Government, considered that it would be valuable to build on the work of the Company Law Review and the Myners Review and undertake a review to assess such issues as the population of non-executive directors in the UK in terms of who are they, how are they appointed, their “independence”; their effectiveness; accountability; remuneration; and how to strengthen the quality, independence and effectiveness of NEDs.

The summary of recommendations consisting of six pages of the report is wide ranging, reflects the terms of reference and covers such issues as independence, recruitment, appointment, induction, tenure, remuneration, resignation, audit committees, liability and relationships with shareholders. Higgs’ report states that three substantial pieces of primary research were commissioned to inform his recommendations. These being data on the population of non-executive directors supplied by Hemscott Group Limited, data on the role of non-executive directors surveyed by MORI and data on the relationships and behaviours that enable effective non-executive director performance, supplied by three academics, McNulty of the University of Leeds and Roberts and Stiles of the University of Cambridge.

2.8 TYSON

“The Tyson Report (Tyson 2003) on the Recruitment and Development of Non Executive Directors” was published in June 2003. The report was commissioned by the Department of Trade and Industry (DTI), who were concerned to implement the recommendations included in the preceding Higgs Review on how companies might improve the quality and performance of their boards – through changes in the way they identify, select, recruit and train individuals to serve in NED positions. Dean Laura Tyson of the London Business School was invited to chair the task force selected to undertake the review. The Higgs Report (see above), in Tyson’s words, “raised the agenda” on boardroom effectiveness and considers that her report provides another piece of the jigsaw by highlighting how a range of different backgrounds and experiences among board members can enhance board effectiveness by exploring how a broader range of non-executive directors can be identified and recruited. Tyson states that diversity in the backgrounds, skills and experience of NEDs enhances board effectiveness by bringing a wider range of perspectives and knowledge to bear on issues of company performance, strategy and risk. The review report consists of 12 chapters, which cover the themes of the attributes, “sourcing” and current composition of NEDs, the benefits of diversity among NEDs, constraints on board composition and the need for ongoing training. The recommendations include:

- the selection process for each NED appointment resting on a careful assessment of the needs and challenges of a particular company;
- the broadening of selection search to include, in Tyson’s words, the “marzipan” layer of management in PLC companies; professional services firms; unlisted companies and private equity firms; the non-commercial sector; and the commercial and non-commercial sectors in foreign companies;
- increasing formal training and evaluation of board members; and
- gaining greater board diversity and the development of an initiative (formation of a new organisation) to provide regular and reliable measures of board composition.

2.9 COMBINED CODE ON CORPORATE GOVERNANCE 2003

The 2003 Code replaced the Combined Code issued by the Hampel Committee on Corporate Governance in June 1998. It is derived from a review of the role and effectiveness of

non-executive directors by Derek Higgs and a review of audit committees by a group led by Sir Robert Smith. The Financial Services Authority (FSA) took the decision to replace the 1998 Code annexed to the Listing Rules with the revised Code. This new Code applies to reports issued by listed companies on or post-November 2003. The preamble to the Code explains that the Listing Rules would not be amended as far as listed companies being required to issuing disclosure statements in two parts in relation to the Code. In the first part of the statement they are required to state their governance policies and in the second part of the statement the company has to confirm that it complies with the Code's provisions or where it does not, provide an explanation. The view taken was that the "comply or explain" approach had been in operation for over 10 years and would continue. The Code is broken down into five parts, namely Directors, Remuneration, Accountability and Audit, Relations with Shareholders and Institutional Shareholders.

While the European Union (EU) commission does not want to enact a European code of corporate governance, as it currently sees no need at present, this may change. In addition, as the commission considers that the existence of different codes may cause some frictional and fragmentary cost, it is encouraging a move towards greater convergence. Hence over time it may be that there are EU pressures on the UK to modify its Combined Code.

2.10 THE "COMPLY OR EXPLAIN" REGIME

A key feature of the UK's approach to corporate governance, from the Cadbury Code to the Combined Code of 2003, has been the avoidance of prescriptive rules. Only time will tell if statutory compliance will be introduced. This current avoidance of prescriptive rules reflects the view that different governance approaches are required for different companies, depending on their size, business activity, operating environment and ownership structure. In other words, one solution does not suit all circumstances. This stance is supported by Higgs (2003) who states "I do not presume a 'one size fits all' approach to governance is appropriate". In consequence, successive Codes have no statutory force, but have been appended to the Listing Rules, with a requirement on listed companies to disclose in their annual reports whether or not they have complied with Code recommendations and where they have not, providing reasons for the areas of non-compliance. Under the resulting "comply or explain" regime, a company is under no formal obligation to comply with the best practice recommendations included within the Code. The Code states "this 'comply or explain' approach has been in operation for over 10 years and the flexibility it offers has been widely welcomed both by company boards and by investors". However, the disclosure obligation ensures that the company's shareholders are able to monitor the extent of its compliance, consider the explanations provided by the directors for any areas of non-compliance and if dissatisfied express their concerns through their voting behaviour at the AGM.

2.11 DEFINITION OF CORPORATE GOVERNANCE

So now what do we mean by corporate governance? A definition of corporate governance is important here to aid both comprehension and understanding, in terms of its purpose and its relationship with internal control. The Institute of Directors (IOD), within its 2004 "factsheet" on corporate governance, declares that there is no single accepted definition of what the expression "corporate governance" means. The definitions that do exist tend to be broad high-level statements such as that included in the Cadbury Committee report which states "corporate governance is the system by which businesses are directed and controlled". While appealing

in its simplicity, this definition is not particularly informative. The Organisation for Economic Cooperation and Development (OECD) expands the definition to cover issues of stakeholder management, objective setting and monitoring performance: “corporate governance involves a set of relationships between a company’s management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined.” The Combined Code 2003 describes one of the supporting principles of corporate governance under Section A.1 headed “The Board” as: “The board’s role is to provide entrepreneurial leadership of the company within a framework of prudent and effective controls which enables risk to be assessed and managed. The board set the company’s strategic aims, ensure that the necessary financial resources are in place for the company to meet its objectives and review management performance. The board should set the company’s values and standards and ensure that its obligations to its shareholders and others are understood and met.” This introduces the themes of leadership, risk management, aims, resources, performance measurement and culture. A detailed definition is offered here, adopting the themes of earlier publications and including the elements of direction, resources and management:

Corporate governance is the system by which companies are *directed*, in terms of (1) the company’s strategic aims, (2) entrepreneurial leadership, *resourced* in terms of providing (1) the necessary financial and human resources, (2) the necessary ICT resources, and *managed* using robust, defensible and prudent controls to (1) interface with internal and external stakeholders, (2) establish risk management processes, (3) produce accurate, timely and relevant information for decision-making, risk management and reporting, (4) comply with laws and regulations, (5) establish the company culture by setting the company’s values and standards, and (6) reflect the perspective of the parent company as appropriate.

2.12 FORMATION OF COMPANIES

Of interest here are organisations in the private sector known as PLCs which can sell their shares to the public and may be quoted on the stock exchange. While corporate governance and risk management are important to all businesses, whether they be sole traders, partnerships, private limited companies, cooperatives or franchises, corporate governance and enterprise risk management has greater significance for listed companies. The main thrust of the Cadbury Committee’s report for instance was to review the financial reporting and accountability of listed companies with the view to protecting shareholders’ interests (see Appendix 1 to the Cadbury Committee report, entitled Terms of Reference).

When a company is formed, a legal distinction is created between the existence and identity (or “personality”) of the company itself and those of its members or shareholders. This distinction gives incorporated form significant advantages as a means of carrying on a business:

- As a legal person in its own right, a company can possess rights and privileges not available to its shareholders and can take action to enforce these rights.
- Only the company not its shareholders can be sued for breach of its legal duties.
- Property owned by the company is distinct from the property of its shareholders, with the result that shareholder’s property is unaffected by the claims of creditors in the event that the company becomes insolvent.

PLCs are limited by share and must include “PLC” in their name. This acts as a warning to those trading with such a company, because any debts it incurs from trading may not be

recoverable due to the limited liability of its owners (shareholders). Where a limited company cannot pay its debts from its own financial resources, it cannot make the owners use their personal finances to meet these debts. Limited liability encourages greater investment than would otherwise take place, and ensures a demand for stocks and shares. The benefit for the economy is that it encourages people to risk owning or investing in companies, because they know their liability (losses) will be limited to the amount they have agreed to invest.

The main legal provisions relevant to the formation and operation of listed companies are contained in a small number of Acts of Parliament. Requirements for the formation and operation of companies are specified in the Companies Acts of 1985 and 1989. Arrangements for the disqualification of directors are set out in the Company Directors Disqualification Act 1986. Corporate insolvency is covered by a distinct legislative regime under the Insolvency Act of 1986 and regulation of the securities markets is now contained in specific financial services legislation, the Financial Services and Markets Act of 2000.

2.13 THE FINANCIAL SERVICES AND MARKETS ACT 2000

The Financial Services Authority (FSA)⁴ is an independent non-governmental body, given statutory powers by the Financial Services and Markets Act 2000 (“the Act”). It is the single regulator for financial services in the UK. It is a company limited by guarantee and financed by the financial services industry. Her Majesty’s Treasury appoints the FSA’s board, consisting of a chairman, chief executive officer, three managing directors and 11 non-executive directors. This board sets the overall policy whereas day-to-day decisions are the responsibility of the executive. The FSA is the UK Listing Authority (UKLA) and hence the authority in the UK for the listing of company shares and other securities for trading on public stock exchanges. The FSA (as a competent authority under Part VI of the Act) governs listing through its Listing Rules (published in the book entitled *The Listing Rules*), whereby companies wishing to trade their securities must first apply for admission to the FSA demonstrating compliance with the Rules (Listing Rules 2003). Companies may be required to prepare listing particulars (or prospectuses) setting out the nature of their business, their management and financing arrangements and potential material risks to potential investors. In accordance with the Listing Rules private companies will not be granted admission. Once a company’s securities have been listed for trading, it is required by the Listing Rules to fulfil a number of ongoing reporting requirements regarding finance, management and constitution. Additionally, under the heading “Corporate governance and director’s remuneration” the Listing Rules require directors of listed companies to report to shareholders on whether or not they are complying with Section 1 (headed “Companies”) of the Combined Code of Corporate Governance, and where not, giving reasons for any non-compliance. The UKLA has the power to either suspend or cancel a listing.

2.14 THE LONDON STOCK EXCHANGE

The London Stock Exchange (LSE) provides the bridge between Issuers and the capital markets. The LSE remains by far the largest equity market in Europe. It enables companies (from around the world) to raise capital required for growth, by listing securities on what it claims are highly efficient, transparent and well-regulated markets. Through its two primary markets – the Main Market and AIM – the Exchange provides companies with access

⁴ Web address: www.fsa.gov.uk.

to one of the world's largest pools of investment capital. The Main Market is the Exchange's principal market for listed companies from the UK and overseas. The other market is known as the Alternative Investment Market (AIM). AIM is the London Stock Exchange's international market for young and growing companies. AIM enables these businesses to access the capital and liquidity of the London markets. Once companies have been admitted to trading, the Exchange provides expertise of the global financial markets to assist them maximise the value of their listing in London. It provides the trading platforms used by broking firms around the world to buy and sell securities. Its systems provide fast and efficient access to trading, allowing investors and institutions to tap quickly into equity, bond and derivative markets. It is understood more than 300 firms worldwide trade as members of the London Stock Exchange. The LSE Issuer service works with customers before, during and after listing. As of 31 March 2004 there were 1901 companies listed on the Main Exchange market. The Exchange it can be argued is "regulated" by the Office of Fair Trading (OFT). In 2004 the OFT conducted an inquiry into increases in the annual and admission fees for the UK Main Market resulting in the London Stock Exchange settling for reduced fees. As a Recognised Investment Exchange ("RIE"), all the Exchange's markets must meet standards detailed in the Financial Services Authority's RIE and RCH Sourcebook. In addition to this UK standard, the Exchange has also sought to apply the EU market standards set out in the Investment Services Directive ("ISD") to certain of its markets.

2.15 SUMMARY

This chapter traced the developments in corporate governance from the Cadbury Report through to the Combined Code of 2003, examined the formation of companies and looked at the workings of both the FSA and the LSE. The Cadbury Committee and its code of best practice was first examined, which is recognised to be the start of a formalised approach to corporate governance. One of the four main themes of the code, executive directors' remuneration, was further developed by the Greenbury Committee culminating in the report on Directors' Remuneration. Subsequently it was decided that the previous governance recommendations should be reviewed and brought together in a single code. The review was carried out under the chairmanship of Sir Ronald Hampel and the ensuing final report known as the Hampel Report issued in 1998 with its Combined Code on Corporate Governance, included a number of provisions relating to internal control. However, it gave little guidance on the actual implementation of internal controls. As a result the ICAEW, in conjunction with the Stock Exchange, formed a working party to study the matter of internal control, which resulted in the Turnbull Report of 1999. For the first time there was emphasis on the creation of a system of risk management.

In 2002 the DTI asked Derek Higgs to look at how the role and effectiveness of NEDs may improve corporate performance. The ensuing report issued in 2003, known as the Higgs Report, also suggested amendments to the Combined Code. The Tyson Report, building on the Higgs Report, examined how boards may identify, select, recruit and train individuals to serve in NED positions to improve board performance. At the same time as Higgs was reporting, the Financial Reporting Council (FRC) had asked a group chaired by Sir Robert Smith to issue guidance for audit committees. In July 2003, the revised Combined Code, taking account of both the Higgs and Smith reviews was published and took effect for reporting periods beginning on or after 1 November 2003.

Since Cadbury, all UK reports and codes have taken the "comply or explain" approach. The key governance issues addressed by these reports and codes include board structure and

membership, board management, director's remuneration, financial controls, accountability, audit and relations with shareholders. Additionally the formation of public limited companies, the operation of the FSA and the listing rules and the operation of the LSE were all examined. The link between these last three sections is that public companies, which wish to raise capital for growth on a recognised investment exchange such as the LSE, have to apply to the FSA for admission. A condition of entry is compliance with the Listing Rules, which refer to adherence to the Combined Code. Having reflected on the Codes and Reports, a definition of UK corporate governance is offered as a backdrop to internal controls and risk management.

2.16 REFERENCES

- Cadbury Committee on the Financial Aspects of Corporate Governance (1992) *Report of the Committee on the Financial Aspects of Corporate Governance: The Code of Best Practice*, Gee Publishing.
- Combined Code on Corporate Governance (July 2003), Financial Reporting Council, CCH.
- Cooper, B. (2004), *The ICSA Handbook of Good Boardroom Practice*, ICSA Publishing Limited, London.
- Dey (1994) Toronto Stock Exchange Committee on Corporate Governance in Canada, *Where Were the Directors?*, TSE, Canada, December.
- Greenbury Study Group (1995) *Report on Directors' Remuneration*, Gee Publishing.
- Hampel Committee on Corporate Governance (1998) *Committee on Corporate Governance: Final Report*, Gee Publishing.
- Higgs Review (2003) *Review of the Role and Effectiveness of Non-Executive Directors*, published by the Department of Trade and Industry, UK. Printed by the Stationery Office.
- The Listing Rules* (2003) Financial Services Agency, London.
- Smith, R. (2003) FRC, "Audit Committees Combined Code Guidance", a report and proposed guidance by an FRC appointed group chaired by Sir Robert Smith (2003) The Financial Reporting Council Limited (FRC), January.
- Turnbull Working Party (1999) *Internal Control: Guidance for Directors on the Combined Code*, published by ICAEW.
- Tyson (2003) *The Tyson Report on the Recruitment and Development of Non-Executive Directors*, London Business School (<http://www.london.edu>).

Developments in Corporate Governance in the US and Canada

The previous chapter examined the incremental developments in corporate governance in the UK from the Cadbury Committee to the Combined Code of 2003. This chapter examines the parallel initiatives in the US and Canada and their own unique catalysts for corporate governance and internal controls. While stock exchanges and governments around the world have clearly followed developments in corporate governance in the UK, events in the US and Canada have directly influenced the specific course of action that they have followed. The highly publicised events surrounding the collapse of Enron and WorldCom, rather than just colouring the US's approach to corporate governance, have prompted what might be termed a more radical approach than that seen in the UK, resulting in new legislation – the Sarbanes-Oxley Act. Chapter 4 examines internal control and risk management and their relationship with corporate governance.

3.1 SARBANES-OXLEY ACT 2002

3.1.1 Enron

Prior to discussing Sarbanes-Oxley it is worth briefly examining the main catalyst of this legislation, the collapse of Enron. As an unaffected observer, the story is fascinating. Until 2001, US energy trader Enron was one of the largest companies in the world. The BBC bulletin dated 8 July 2004 and entitled “Q&A, the Enron Collapse”, succinctly summarises its evolution and the nature of its business:

Enron began life as an energy producer, moved to become an energy trader, and ended up an energy “bank” providing guaranteed quantities at set prices over the long term. Enron owned power plants, water companies, gas distributors and other units involved in the delivery of services to consumers and businesses. But it was the first to realise energy and water could be bought, sold, and hedged just like shares and bonds. Enron became a huge “market-maker” in the US, acting as the main broker in energy products, also taking financial gambles far bigger than its actual core business.

The beginning of Enron's demise can be traced to an announcement in October 2001 which stated that it was taking a \$544 million charge to its reported earnings after tax in respect of transactions with an off-balance sheet entity owned by Enron, but created and controlled by its chief financial officer (CFO). Hence to disguise its true balance sheets, the firm had used complex financial partnerships to conceal mounting debts. In addition, shareholders' equity was being reduced by \$1.2 billion. Less than one month later, the company announced that it was restating its accounts for the years 1997 through to 2001 because of accounting errors in relation to off-balance sheet entities controlled by the CFO and other senior managers. The restatements involved reductions of between 10 and 28% in reported net income in each of the years affected, with substantial reductions in shareholders' equity and increases in reported levels of indebtedness. The company also revealed for the first time that the CFO

had received personal payments from off-balance entities that he controlled. Following these announcements, investor confidence in Enron's ability to recover its position collapsed and the company filed for bankruptcy protection in December 2001.

The fallout from Enron's failure was considerable. Enron left behind \$15 billion of debts, its shares become worthless and 20 000 workers around the world lost their jobs. Many banks were exposed to the firm as a result of lending money to and trading with it. JP Morgan admitted to \$900 million of exposure, and Citigroup to nearly \$800 million. Former high-profile bankers Merrill-Lynch were charged with fraud in connection with Enron transactions. Consultants Andersen, which failed to audit Enron accounts correctly, collapsed with the loss of 7500 jobs in the US, and 1500 in the UK.

3.1.2 WorldCom

While Enron had seriously shaken investor confidence in the global financial markets, the collapse of US telecom business WorldCom gave impetus to more deep-rooted concerns over the substance of very large firms. WorldCom's bankruptcy was twice the size of Enron's, which up to that time had been America's largest bankruptcy. WorldCom, prior to disclosure of its problems, owned a third of the US's high-speed data cables and was the second largest long-distance phone operator with 85 000 staff in 65 countries. As a low-margin business, WorldCom needed to grow to survive and at its peak in 1997 it paid \$37 billion (£24.3 billion) to take over telecommunications giant MCI, snatching the business under the jealous gaze of Britain's BT. In June 2002 the firm reported accounting irregularities which had overvalued its income by a mere \$43.3 billion, making the firm look profitable when it was not. However, worse was to come and two months later the business revealed a further \$3.3 billion improperly reported earnings.

In a court filing in New York, the US regulator, the Securities and Exchange Commission (SEC), said that WorldCom had admitted that it concealed \$9 billion in expenses, all of which had been converted into false profits. Mr Ebberts, the former chief executive, had built up the company from a small operator into the world's second biggest long-distance group. The firm filed for bankruptcy in a bid to protect it from creditors to buy time to restructure. Interestingly Mr Ebberts said in his testimony at his trial that he never got good marks at school and dropped out of various colleges before obtaining a qualification as a physical education teacher. He bought a number of motels and only accidentally ended up running a telecoms company in the mid-1980s. William Johnson, assistant US attorney, told jurors at the trial that they should disregard the "Aw shucks, I'm not sophisticated" defence, and that Mr Ebberts was a hands-on chairman very focused on costs, citing examples. During the trial, Chara Sherman, partner at Squire, Sanders & Dempsey, said that:

Mr Sullivan [WorldCom's former chief financial officer and main witness against Mr Ebberts] was sufficiently persuasive to substantiate the natural presumption that nobody that high up could miss such a massive fraud, so Mr Ebberts had to take the huge gamble of testifying. That decision has transformed the case into a litmus test about a CEO's responsibilities after Sarbanes-Oxley. (Van Duyn 2005)

3.1.3 Provisions of the Act

The advent of Enron and similar cases led to the US Government passing the Public Company Accounting Reform and Investor Protection Act of 2002, whose short title is the "Sarbanes-Oxley Act of 2002", with the aim of protecting investors by improving the accuracy and

reliability of corporate disclosures. The main thrust of the Act is to influence the behaviour and conduct of public accounting firms¹ and public companies to ensure they issue informative accurate financial statements. Significant provisions of the Act include:

Audit regulation: The Act establishes a Public Accounting Oversight Board with responsibility for the registration (Section 102) inspection (Section 104) and discipline (Section 105) of public accounting firms together with overseeing the audit of public companies that are subject to the securities laws² and related matters in order to protect the interests of investors and further the public interest in the preparation of informative, accurate and independent audit reports.

Corporate responsibility: Under Section 302, the chief executive officer (CEO) and the chief financial officer (CFO) of public companies have to take personal responsibility for its financial reports by certifying that they do not contain any untrue statement of a material fact, omit any material fact or mislead. Additionally these “signing officers” are held accountable for establishing and maintaining internal controls and evaluating their effectiveness (as of a date within 90 days prior to the report). They are also responsible for advising their auditors of all significant deficiencies in the design or operation of the internal controls and any identified weaknesses in the internal controls.

It is interesting to note that the first chief executive to be charged under the Act, Richard Scrushy, former CEO of HealthSouth, was acquitted.³ Mr Scusby had faced 58 criminal charges including conspiracy, money laundering, perjury, mail fraud and making false statements. At the time of the trial Tim Burns, a corporate governance expert at Neal, Gerber & Eisenberg (a Chicago law firm), was of the opinion that if the prosecution failed, there would be calls from politicians and the public to make tougher regulations. The trial related to a \$2.7 billion fraud where the company had overstated its earnings between 1996 and 2002. In the years 2000, 2001 and 2002, the company had actually suffered \$multimillion losses despite reporting a profit. While the CEO was cleared, 15 former HealthSouth staff had pleaded guilty, including the five former chief financial officers. Time will tell as to whether the legislation will be progressively tightened.

Management assessment: Under Section 404, public companies are required to include in each annual report an internal control report which states (1) the responsibility of management to establish and maintain an adequate internal control structure and procedures for financial reporting, and (2) an assessment, as of the end of the most recent fiscal year, the effectiveness of the internal control structure and procedures for financial reporting. Additionally, the auditor (registered public accounting firm) preparing the audit for the public company “shall attest to, and report on, the assessment made by the management” of the public company.

Non-interference in the audit process: Under Section 303, the Act states it is unlawful for directors, officers (or persons acting under their direction) to take any action to fraudulently influence, coerce, manipulate, or mislead any independent public or certified accountant auditing the firm’s financial statements.

¹ The term “public accounting firm” as defined by the Act means a proprietorship, partnership, incorporated association, corporation, limited liability company, limited liability partnership or other legal entity which is engaged in the practice of public accounting or preparing or issuing audit reports.

² The term “securities laws” means the provisions of law referred to in Section 3(a)(47) of the Securities Exchange Act of 1934 as amended by the Sarbanes-Oxley Act 2002.

³ BBC News report “HealthSouth’s Ex-boss not Guilty”, Tuesday, 28 June 2005, <http://news.bbc.co.uk>.

Company records: Under Section 801, the Act makes it a criminal offence for anyone to knowingly alter, destroy, mutilate, conceal, cover up or falsify any record/document, with the intent to impede, obstruct or influence the investigation of any matter. Individuals found guilty of these charges, the Act states, “shall be fined under this title, imprisoned not more than 20 years, or both”.

Disciplinary sanctions: Under Section 105(c)(4) of the Act, the Board⁴ has the powers to impose disciplinary or remedial sanctions on a registered public accounting firm (or associated person) that it considers has been in violation of the Act. The sanctions include suspension or permanent loss of registration status, temporary or permanent prohibition of an individual being able to associate with a registered public accounting firm, limitation of activities, civil money penalty, censure, requirement for additional professional education or training, or other sanction.

3.1.4 Implementation

Early UK experience of FTSE 250 companies has involved dealing with:

- undeveloped reporting routines and systems;
- inadequate or inconsistent levels of documentation;
- multiple financial systems as a result of geographical spread and or acquisitions;
- the implications of outsourcing of certain financial functions.

3.1.5 Sarbanes-Oxley, Section 404

The difference between the Combined Code 2003 and Sarbanes-Oxley is that under the Combined Code, management are not required to report on the effectiveness of their internal controls and auditors are not required to report on the assessment made by management, whereas with Sarbanes-Oxley it is about 100% compliance!

Section 404 of Sarbanes-Oxley requires:

- management to assess the effectiveness of their internal controls and procedures for financial reporting;
- the auditor to attest to and report on the assessment made by management.

Hence management must understand:

- Are the controls explicit, have they been identified and documented?
- Are they consistent across the business?
- Do they address the business critical success factors?
- Do the controls include risk management?
- What procedures need to be performed, to enable them to sign off that controls are effectively working?

Sheridan (2003) considers that the requirements of Sarbanes-Oxley, Section 404 need to be implemented as a project and that the issues in Table 3.1 are to be considered for ensuring the successful completion of a Section 404 project.

⁴ The term “board” means the Public Company Accounting Oversight Board, established as a non-profit corporation rather than a US Government agency.

Table 3.1 Activities for the successful completion of a Section 404 project

| Issue | Response |
|--|---|
| Executive sponsorship | Executive sponsorship needs to be secured, leading to the formation of a steering committee that will provide clear and ongoing direction and support. |
| Project management | A Section 404 project is typically a complex and challenging exercise. A strong project management team and a clearly defined plan are essential. Typically financial controllers or internal auditors are being expected to lead the project, but it is expected that IT management be part of the management team. Care should be taken to maintain internal audit's independence. |
| Role of external audit | As external auditors are required to attest management's assessment, it is critical to involve them at an early stage. The extent of their involvement in detailed documentation depends on the level of perceived independence desired by the board. However, they will be unable to perform any evaluation or control testing on behalf of management. |
| Section 404 adviser | Experience has shown that Section 404 projects benefit from the input and support provided by independent, third-party advisers. These advisers can accelerate the start-up phase by bringing to the project tried and tested tools and documentation templates along with experience of how others are tackling their implementation. |
| Skills of finance, IT and internal audit staff | The project execution teams need to be the right blend of experience and capabilities and must have sound training to ensure effective application of a suitable methodology and approach. |
| Impact on internal audit resources | Where internal audit is contributing to project execution, management must consider the impact on its ability to deliver the audit plan. In order to meet the assurance expectations of the audit committee, any gaps left by the redeployment of internal auditors must be considered and addressed. |
| Identification of significant controls | AT 501 outlines types of controls that will be deemed to be significant as well as factors to consider, e.g. likelihood of failure, impact on the financial statements and the extent of compensating controls. At present this is the best indicator of what may be expected, but companies should consult their auditors and agree on an approach. It is recommended that a company starts with its significant accounts and maps these to locations and processes before identifying the controls. |
| What should documentation look like? | There isn't a required style or format. It is important to cover key information such as risk control description, who performs, types of control, frequency, evidence and results of testing from an efficiency point of view. Leveraging existing processes for risk management and internal audit documentation is sensible. |

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3.2 CANADA

3.2.1 Dey Report

In 1994 the Toronto Stock Exchange (TSE) published a study of Canadian corporate governance, prepared by its own Corporate Governance Committee. The report called *Where Were The Directors?*, subsequently known as the "Dey Report" after Peter J. Dey QC who led the

committee, over time became to be recognised as a landmark in the development of Canadian corporate governance (Dey 1994). The following year the TSE adopted 14 of the recommendations included in the report as “best practice” guidelines and required every listed company to disclose annually their approach to corporate governance using the guidelines as a reference point, together with an explanation of any differences between the company’s approach and the guidelines. For the guidelines were not mandatory. The TSE recognised that there is no “one size fits all” solution. Included within the recommendations was the proposal that the Exchange adopt, as a listing requirement, the disclosure by each listed corporation of its approach to corporate governance, on an annual basis commencing with companies with 30 June 1995 year ends.

3.2.2 Dey revisited

The Committee that produced *Where Were The Directors?* recommended that “a successor committee [...] monitor developments in corporate governance, and evaluate the continued relevance of our recommendations”. Following that lead, the TSE and the Institute of Corporate Directors (ICD) commissioned a review to assess how much progress had been made in the quality of governance. The result was the report entitled *Report on Corporate Governance 1999, Five Years to the Dey* (TSE/ICD 1999). The report was aimed at assessing the extent to which corporate governance of public companies reflected the earlier TSE guidelines and identifying opportunities for the TSE and the ICD to support sound practices. The principal component of the research behind the report was a survey of chief executive officers. A total of 1250 TSE listed companies were invited to participate in the survey representing 95% of issuers listed on the TSE. The 636 replies to the survey constituted a response rate of 51%, which the report justifiably claims had generated a set of highly reliable results. In summary the survey found that the highest levels of compliance appeared to be in controlling board size, participation in strategic planning for the corporation and achieving a majority of unrelated directors. The earlier TSE guidelines had advocated that boards assume responsibility for “the identification of the principle risks of the organisation’s business, ensuring the implementation of appropriate systems to manage these risks.” From the survey it appeared that risk management was one of the less well-developed governance activities with 39% of participating companies having no formal process. This percentage rose to 55% in the gold and precious metals sector. This is noteworthy in that in the preceding five years there had been spectacular corporate failures in the entertainment, electronics and mining sectors.

Included in Figure 3.1 is an extract of the survey questions specific to risk management and the corresponding number of answers received expressed as a percentage of the total number of responses.

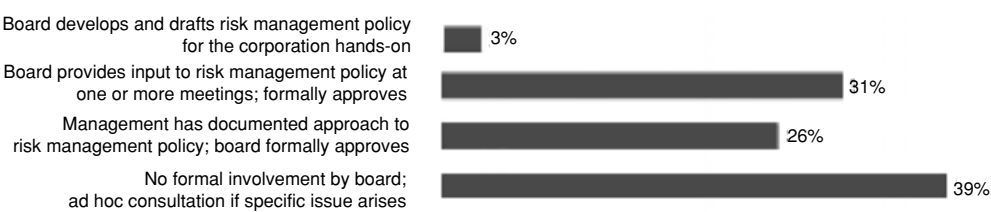


Figure 3.1 Risk management survey questions and their responses

3.2.3 Saucier Committee

More recently the Canadian Institute of Chartered Accountants (CICA), the TSE and the TSE Venture Exchange (the then Canadian Venture Exchange) established the Joint Committee on Corporate Governance in July 2000 (the Saucier Committee). The mandate of the Saucier Committee was to review the state of corporate governance in Canada and make recommendations for improvements. In preparing its guidelines, the Committee examined the corporate disclosure regimes of stock exchanges in the US, Australia and the UK. The Saucier Committee's final report, released in November 2001, recommended that the TSE amend its corporate governance guidelines for listed issuers in a series of ways to align them with international developments. On 26 April 2002, the TSE proposed changes to its guidelines for effective corporate governance in response to the Saucier Committee's recommendations.

3.3 SUMMARY

This chapter examined the events surrounding the collapse of both Enron and WorldCom, the known catalysts behind the US Government's decision to pass the Sarbanes-Oxley Act of 2002, with the aim of protecting investors by improving the accuracy and reliability of corporate disclosures. The main thrust of the Act is to influence the behaviour and conduct of public companies and public accounting firms, to ensure they issue informative accurate financial statements. The Act establishes a Public Accounting Oversight Board with responsibility for the registration, inspection and discipline of public accounting firms that are subject to the securities laws. The chief executive officer (CEO) and the chief financial officer (CFO) of public companies have to take personal responsibility for its financial reports by certifying that they do not contain any untrue statement of a material fact, omit any material fact or mislead. To address a specific event in the Enron collapse, the Act makes it a criminal offence for anyone to knowingly alter, destroy, mutilate, conceal, cover up or falsify any document, with the intention of thwarting any investigation of a business and those found guilty may be fined, imprisoned or both. In addition the chapter examined the developments of corporate governance in Canada. The Dey Report had a similar effect in Canada (as did the Cadbury Report in the UK) and laid a foundation for the development of corporate governance among listed companies. Its recommendations were appended to the listing requirements of the TSE, which adopted a "comply or explain" approach similar to the UK, where compliance is not mandatory. The survey called *Report on Corporate Governance 1999, Five Years to the Dey*, instigated to establish development in corporate governance practice among listed companies, found that risk management was one of the less well-developed governance activities. Listing requirements in Canada have subsequently been updated to reflect international developments in corporate governance on the back of the recommendations of the Saucier Committee.

3.4 REFERENCES

- Dey (1994) Toronto Stock Exchange Committee on Corporate Governance in Canada, *Where Were the Directors*, TSE, Canada, December.
- Sheridan, F. (2003) "Implementing Sarbanes-Oxley Section 404", forming Section 3.3 of *Managing Business Risk, a Practical Guide to Protecting Your Business*, consultant editor Jolly, A., published by Kogan Page Limited, Great Britain and USA, pp. 81–89.
- TSE/ISD (1999) *Report on Corporate Governance 1999, Five Years to the Dey*, jointly published by the Toronto Stock Exchange and the Institute of Directors, Toronto, Ontario, Canada. The principal author was Dr Ruth Corbin, president and CEO of Decision Resources Inc.
- Van Duyn, A. (2005) "Jurors to Take their Pick over WorldCom", *Financial Times*, Friday, 4 March 2005.

Internal Control and Risk Management

The previous chapter examined developments in corporate governance in the US and Canada, as a logical progression of the examination of corporate governance in the UK. This chapter continues to establish the context of enterprise risk management by first examining what is meant by the term “internal control”, a subject that permeates the vast majority of the guides and publications on governance, and second how internal control relates to risk management. The governance study reports and guides briefly examined in Chapter 2 are re-examined here to establish the intention and composition of internal controls and their relationship with risk management. Chapter 5 examines developments in risk management in the public sector.

4.1 THE COMPOSITION OF INTERNAL CONTROL

What is “internal control”? While published descriptions of corporate governance make it clear it is multifaceted and that internal controls are a subset of corporate governance, specific internal controls cannot be readily distilled. The Cadbury Committee (Cadbury 1992) stated under Section 4.31 “Directors are responsible under s.221 of the Companies Act 1985 for maintaining adequate accounting records. To meet these responsibilities directors need in practice to maintain a system of internal control over the financial management of the company, including procedures designed to minimise the risk of fraud.” This requirement has been maintained in the Combined Code 2003, which states a function of the board is to maintain a sound system of internal control. Controls are described within Section C.2.1 of the Code as including financial, operational and compliance controls as well as risk management systems. Hence the Code takes a broader definition of internal controls than the Cadbury Committee. The Code cross-refers to the Turnbull Report¹ (Turnbull 1999) which (within Section 20) provides guidance on the composition of an internal control system as follows:

An internal control system encompasses the policies, processes, tasks, behaviours and other aspects of a company that, taken together:

- facilitate its effective and efficient operation by enabling it to respond appropriately to significant business, operational, financial, compliance and other risks to achieving the company’s objectives. This includes the safeguarding of assets from inappropriate use or from loss and fraud, and ensuring that liabilities are identified and managed;
- help ensure the quality of internal and external reporting. This requires the maintenance of proper records and processes that generate a flow of timely, relevant and reliable information from within and outside the organisation;
- help ensure compliance with applicable laws and regulations, and also with internal policies with respect to the conduct of business.

¹ When the Combined Code of the Committee on Corporate Governance (the Code) was published in 1998, the Institute of Chartered Accountants in England and Wales agreed with the London Stock Exchange that it would provide guidance to assist listed companies to implement the requirements of the Code relating to internal control. The result was the creation of the Turnbull Working Party which published its report entitled *Internal Control: Guidance for Directors on the Combined Code*, in September 1999. This report became known not surprisingly as the Turnbull Report.

Section 17 of the report provides further guidance on the composition or content of a sound system of internal control in the following statement:

In determining its policies with regard to internal control, and thereby assessing what constitutes a sound system of internal control in the particular circumstances of the company, the board's deliberations should include consideration of the following factors:

- the nature and extent of the risks facing the company;
- the extent and categories of risk which it regards as acceptable for the company to bear;
- the likelihood of the risks concerned materialising;
- the company's ability to reduce the incidence and impact on the business of risks that do materialise; and
- the costs of operating particular controls relative to the benefit thereby obtained in managing the related risks.

It addresses: the nature and extent of risks facing a company; acceptable risks; the likelihood of occurrence; risk reduction; and the cost of risk management actions. Hence it is not all embracing and does not address such issues as methods of identification, methods of assessment, risk evaluation, risk appetite, risk transfer and secondary risks.

4.2 RISK AS A SUBSET OF INTERNAL CONTROL

Turnbull describes a company's system of internal control as having a key role in the management of risks that are significant to the fulfilment of its business objectives and states that financial records help ensure that the company is not unnecessarily exposed to avoidable financial risks. Section 10 of the guidance describes one of the main functions of internal control as follows:

A company's system of internal control has a key role in the management of risks that are significant to the fulfilment of its business objectives. A sound system of internal control contributes to safeguarding the shareholders' investment and the company assets.

Additionally Turnbull states that a company's objectives, its internal organisation and the environment within which it operates are continually changing. Hence a sound system of internal control therefore depends on a thorough and regular evaluation of the nature and extent of the risks to which the company is exposed. He argues that as profits are in part the reward for successful risk taking in business, the purpose of internal control must be to help manage and control risk appropriately.

Figure 4.1 illustrates the relationship of corporate governance (in the form of the 2003 Combined Code) to internal control, its subsets and specifically risk management.

4.2.1 The application of risk management

On completion of the guidance on internal control produced by the Working Party led by Nigel Turnbull, the Institute of Chartered Accountants (ICA) published a briefing to aid its implementation. It provides clear unambiguous guidance on how to implement risk management within a business. Within the foreword to *Implementing Turnbull* (Jones and Sutherland 1999), Sir Brian Jenkins (the then chairman of the Corporate Governance Group of the ICA) stated the aim of this briefing was to be a source of timely, practical help to those directors who wished to take steps to implement the new guidance in a straightforward way, which would bring business benefits. The executive summary (echoed in the foreword) stated the briefing

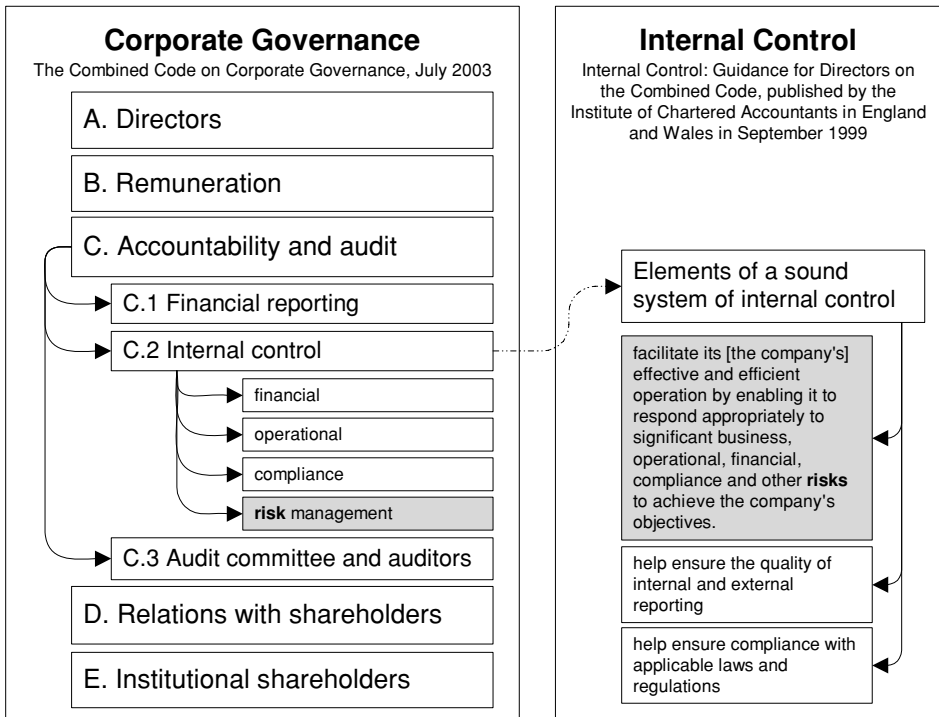


Figure 4.1 Composition of the Combined Code 2003 and its relationship to the Turnbull guidance

had been prepared for directors who wished to take straightforward steps towards achieving Turnbull or are interested in the practicalities of good risk management and internal control and in getting added value for their companies from the guidance. The key messages of the briefing are:

- Do not delay in implementing Turnbull
- Obtain management buy-in at all levels of the organisation
- Prepare a plan
- Identify clear company objectives
- Prioritise the risks to the achievement of the objectives
- Establish a clear risk management policy and control strategies
- Consult throughout the business
- Improve the business culture where appropriate
- Keep it simple and straightforward
- Monitor continuously
- Avoid audit committee overload
- Incorporate Turnbull in your management and governance processes
- Aim to obtain business improvement

The briefing “walks” the reader through (1) *Why Turnbull?* (the benefits of risk management and internal control), (2) *How to add value* (through seeking opportunities, rather than solely focusing on downside risk), (3) *Immediate actions* (gaining buy-in and an appropriate

scale of approach), (4) *Risks* (risk identification and prioritisation), (5) *Embedding the process*, (6) *Monitoring and internal audit*, (7) *Board level considerations* (timing of review), (8) *Disclosures* (the content of annual reviews) and (9) *Other considerations* (committees, benchmarking performance and pitfalls to avoid).

Benefits

The briefing explains that the Turnbull guidance is about the adoption of a risk-based approach to establishing a system of internal control and reviewing its effectiveness. The briefing explains the importance of effective risk management in that when directors have set goals as part of long-term planning, the emergence of risks can mean that a company's realised goals are very different from its intended, desired goals. One of the greatest strengths of the briefing is that it spells out the benefits of implementing risk management through the focus on the management of change to seize opportunity and minimise downside risk, as follows:

A risk based approach can make a company more flexible and responsive to market fluctuations making it better able to satisfy customers' ever-changing needs in a continually evolving business environment. Companies can gain an early-mover advantage by adapting to new circumstances faster than their rivals, which again could lead to competitive advantage in the medium to long term. External perceptions of a company are affected by the level of risk that it faces and by the way its risks are managed. A major risk exposure and source of business failure and/or lack of opportunity success has been the failure to manage change. Companies need to be aware of changing markets, service delivery (e.g. e-commerce) and morale. Effective risk management and internal control can be used to manage change, to all levels of people in the company in meeting its business objectives, and to improve a company's credit rating and ability to raise funds in the future, not to mention its share price over the longer term.

The briefing states the following potential benefits of effective risk management:

- Early mover into new business areas
- Greater likelihood of achieving business objectives
- Higher share prices over the longer term
- Reduction in management time spent "fire fighting"
- Increased likelihood of change initiatives being achieved
- More focus internally on doing the right things properly
- Lower cost of capital
- Better basis of strategy setting
- Achievement of competitive advantage
- Fewer sudden shocks and unwelcome surprises

Risks

The briefing provides guidance on the process of the identification of risks, understanding risk appetite, whether detailed quantification should be carried out and how risks should be prioritised.

The briefing also provides a risk matrix (see Table 4.1), which it describes as setting out the various risks to consider, while at the same time providing a cautionary note that the matrix should not be regarded as comprehensive. The matrix provides a useful guide to the types of issues to be thought about and, where relevant, addressed. A way of framing the risk exposure of a business and developing a risk taxonomy is discussed in Chapter 11.

Table 4.1 Risk matrix. (*Source: Jones and Sutherland (1999), Figure 7*)**Business**

Wrong business strategy
 Competitive pressure on price/market share
 General economic problems
 Regional economic problems
 Political risks
 Obsolescence of technology
 Substitute products
 Adverse government policy
 Industry sector in decline
 Takeover target
 Inability to obtain further capital
 Bad acquisition
 Too slow to innovate

Financial

Liquidity risk
 Market risk
 Going concern problems
 Overtrading
 Credit risk
 Interest risk
 Currency risk
 High cost of capital
 Treasury risk
 Misuse of financial resources
 Occurrence of types of fraud to which the business is susceptible
 Misstatement risk related to published financial information
 Breakdown of the accounting system
 Unrecorded liabilities
 Unreliable accounting records
 Penetration and attack of IT systems by hackers
 Decisions based on incomplete or faulty information
 Too much data and not enough analysis
 Unfulfilled promises to investors

Compliance

Breach of Listing Rules
 Breach of financial regulations
 Breach of Companies Act requirements
 Litigation risk
 Breach of competition laws
 VAT problems
 Breach of other regulations and laws
 Tax penalties
 Health and safety risks
 Environmental problems

Operational and other

Business processes not aligned to strategic goals
 Failure of major change initiative
 Loss of entrepreneurial spirit
 Stock-out of raw materials
 Skills shortage
 Physical disasters (including fire and explosion)
 Failure to create and exploit intangible assets
 Loss of intangible assets
 Breach of confidentiality
 Loss of physical assets
 Lack of business continuity
 Succession problems
 Year 2000 problems
 Loss of key people
 Inability to reduce cost base
 Major customers impose tough contract obligations
 Overreliance on key suppliers or customers
 Failure of new products or services
 Poor service levels
 Failure to satisfy customers
 Quality problems
 Lack of orders
 Failure of major project
 Loss of key contracts
 Inability to make use of the Internet
 Failure of outsource provider to deliver
 Industrial action
 Failure of big technology related project
 Lack of employee motivation or efficiency
 Inability to implement change
 Inefficient/ineffective processing of documents
 Poor brand management
 Product liability
 Inefficient/ineffective management process
 Problems arising from exploiting employees in developing countries
 Other business priority issues
 Other issues giving rise to reputational problems
 Missed business opportunities

4.3 ALLOCATION OF RESPONSIBILITY

It is now commonly recognised that as part of its accountability to shareholders for the strategic direction of a company and the safeguarding of its assets, the board of directors has ultimate responsibility for ensuring the existence of an appropriate system of internal control and risk management. The responsibilities for a company's system of internal control and risk management have become more formalised over time within the progressive development of corporate governance.

4.3.1 Cadbury Committee

The Cadbury Committee is remembered for making three principal recommendations on the subject of internal control. The first (as described under Section 4.13) was that it considered directors should be responsible for maintaining a system of internal control, including procedures designed to minimise fraud. It considered this requirement was implicit under the Companies Act 1985. The second (as described under Section 4.32) was that directors should make a statement in the report and accounts on the effectiveness of their system of internal control. The third (as described under Section 5.16) was that the accounting profession should take the lead in developing:

- criteria for assessing effective systems of internal control;
- guidance for companies on the form in which directors should report; and
- guidance on relevant audit procedures and the form in which auditors should report.

Section 4.39 headed "Internal Audit" makes the distinction between external and internal auditing and considers the establishment of internal audit functions to undertake regular monitoring of key controls and procedures as good practice. It regards such regular monitoring as an integral part of a company's system of internal control and considers monitoring as helpful to ensuring its effectiveness. Additionally it considers internal audit as well placed to undertake investigations on behalf of the audit committee and to follow up on any suspicion of fraud.

4.3.2 Hampel Committee

The Hampel Committee report challenged the practicalities of the recommendations of the Cadbury Committee in terms of its recommendations regarding internal control (Hampel 1998). Within Section IV, entitled "Internal Control", the Hampel Committee refers to the Cadbury recommendation that the accountancy profession should take the lead in developing criteria for assessing the effectiveness of a company's system of internal control and in developing guidance for both directors and auditors to assist in reporting on internal control. As a result of Cadbury, the accounting profession established a working group to develop criteria for assessing effectiveness and guidance for directors on reporting. The group reported back in December 1994. Hampel explains that the word "effectiveness" had proved difficult for both directors and auditors alike in the context of public reporting. Concern had been expressed that the concept of the existence of a process that could determine effectiveness and offer absolute assurance against misstatement or loss was inappropriate as no system of control was foolproof against human error or deliberate override.

What was at the root of the problem was that directors and auditors were concerned that those who confirmed the effectiveness of a company's control system may be exposed to legal

liability if unintentional misstatement or loss of any kind was found to have occurred. The report of the working group therefore recommended, possibly through self-interest, that the director's statement should acknowledge the board's responsibility for the internal financial control system, but explain that such a system could provide only reasonable assurance against material misstatement or loss; should describe the key procedures established in order to provide effective financial controls; and should confirm that the directors had reviewed the system's effectiveness. Hampel concurred that auditors should not be required to report publicly on directors' statements. The working group recommended that directors review and report on all aspects of internal control, including controls to ensure effective and efficient operations. Hampel concurred it was difficult in practice to distinguish financial from other controls. Hence Hampel considers that directors should maintain and review controls addressing all relevant control objectives. That these should include business risk assessment and response, financial management, compliance with laws and regulations and safeguarding of assets, including minimising risk and fraud.

4.3.3 Turnbull

The guidance was prepared to assist boards of UK incorporated listed companies complying with specific aspects of the 1998 Code and in particular:

- assessing how the company has applied Code principle D.2;
- implementing the requirements of the Code provisions D.2.1 and D.2.2; and
- reporting on the matters to shareholders in the annual report and accounts.

Principle D.2 of the Code states that "The board should maintain a sound system of internal control to safeguard control to safeguard shareholders' investment and the company's assets." Principle D.2.1 states that "The directors should, at least annually conduct a review of the effectiveness of the group's system of internal control and should report to shareholders that they have done so. The review should cover all controls, including financial, operational and compliance controls and risk management." D.2.2 states that "companies which do not have an internal audit function should from time-to-time review the need for one".

The objective of the guidance, as it states in Section 8, is to:

- reflect sound business practice whereby internal control is embedded in the business processes by which a company pursues its objectives;
- remain relevant over time in the continually evolving business environment; and
- enable each company to apply it in a manner which takes account of its particular circumstances.

The guidance describes the responsibility of management and employees in the implementation of risk management as follows:

It is the role of *management* to implement board policies on risk and control. In fulfilling its responsibilities, management should identify and evaluate the risks faced by the company for consideration by the board and design, operate and monitor a suitable system of internal control which implements the policies adopted by the board.

Additionally, clause 19 (repeated below) makes reference to the responsibility of employees. Importantly it states that to establish, operate and monitor the system of internal control

individuals will have to know:

- the company;
- the company's objectives;
- the industries the company operates in; and
- the markets the company operates in.

This knowledge is vital if employees are to be effective in identifying the risks facing the company as comprehensively as possible.

All *employees* have some responsibility for internal control as part of their accountability for achieving objectives. They, collectively, should have the necessary knowledge, skills, information and authority to establish, operate and monitor the system of internal control. This will require an understanding of the company, its objectives, the industries and markets in which it operates, and the risks it faces.

The Code describes (within Section C.3.2) responsibility for reviewing the company's financial controls and (unless addressed by others) the company's internal controls and risk management systems, as lying with the audit committee.

4.3.4 Higgs Review

Further to the introduction to the Higgs Review (Higgs 2003) included in Chapter 2, this section seeks to gain the Higgs perspective of internal control. In his introduction, Derek Higgs (Item 1.5, p. 11) describes corporate governance as providing an architecture of accountability – the structures and the process to ensure companies are managed in the interests of their owners. However, he states that architecture in itself does not deliver good outcomes and that, as non-executive directors are the custodians of the governance process, they have a crucial part to play in the success of companies. Item 6.6, referring to the role of non-executive directors, suggests they must ensure they are confident of the adequacy of financial controls and risk management. Hence Higgs proposed the inclusion of the following in the Code: “Risk: Non-executive directors should satisfy themselves that financial information is accurate and that financial controls and systems of risk management are robust and defensible.” (This wording is now included in A1 of the Code 2003.) It was interesting to learn that Higgs, during his research, observed that some of the non-executive directors were concerned about the increasing amount of technical knowledge necessary in order to fulfil their roles on board committees and noted the value of training “on issues such as risk management”. In this context “Training” was understood to be continued professional development rather than formal training.

4.3.5 Smith Review

The Smith Review (Smith 2003), discussed in Chapter 2, provides guidance designed to assist company boards in making suitable arrangements for their audit committees. To set this particular review in context, its guidance was incorporated in the Combined Code on Corporate Governance published in 2003. Smith considered that the role of the audit committee should include reviewing “the company's internal financial control system and, unless expressly addressed by a separate risk committee or by the board itself, risk management systems”. Of interest here, Section 2.1 of the report states one of the main roles and responsibilities of the audit committee is “to review the company's internal financial control system and unless addressed by a separate risk committee or by the board itself, risk management systems”. Within Section 5, “Roles and Responsibilities”, the guidance reiterates the role of the audit committee

stating that it should monitor the integrity of the company's internal financial controls and in the absence of the existence of a risk committee, for instance, assess the scope and effectiveness of the systems established by management to identify, assess, manage and monitor financial and non-financial risks. Further, in Section 5.7, it states that management is responsible for the identification, assessment, management and monitoring of risk, for developing, operating and monitoring the system of internal control and for providing assurance to the board that it has done so. Additionally it considers where the board or a risk committee is expressly responsible for reviewing the effectiveness of the internal control and risk management systems, the audit committee should receive reports from management on the effectiveness of the systems they have established and the results of any testing carried out by internal or external auditors.

4.3.6 OECD

The OECD (Organisation for Economic Cooperation and Development), now composed of 30 member countries (including the UK), was formed to promote policies designed to achieve economic growth and employment and raise the standard of living while maintaining financial stability. They published their revised principles of corporate governance in 2004 (OECD 2004). The principles are aimed at providing non-binding standards, good practices and guidelines of corporate governance for tailoring by member countries to their specific circumstances. As a measure of the widespread adoption of the principles, they now form the basis of the corporate governance component of the World Bank/IMF Reports on the Observance of Standards and Codes (ROSC). The principles are another source document providing a view on the relationship between internal controls and risk management. Under Part 1, Section VI headed "The Responsibilities of the Board" the principles refer to board responsibilities including: "Ensuring [...] that appropriate systems of control are in place, in particular systems for risk management, financial and operational control and compliance with law and relevant standards." It is therefore reasonable to conclude this statement implies that risk management is a subset of systems of internal control. The principles make minimal reference to risk management. The OECD do recommend, however, under Part 1, Section V, entitled "Disclosure and Transparency", the disclosure of both "foreseeable risks" and "governance structures and policies". Additionally within Part 2 of the principles, called "Annotations to the OECD Principles of Corporate Governance", under the section again called "Disclosure and Transparency" (item A6), the principles describe what they mean by foreseeable risks as follows:

Users of financial information and market participants need information on reasonably foreseeable risks that may include: risks that are specific to the industry or the geographical areas in which the company operates; dependence on commodities; financial market risks including interest rate or currency risk; risk related to derivatives and off-balance sheet transactions; and risks related to environmental liabilities.

4.4 THE CONTEXT OF INTERNAL CONTROL AND RISK MANAGEMENT

Figure 4.2 describes the context of internal control and risk management as exercised by a public company (the Issuer). Financial regulation is a web involving Her Majesty's Treasury (HMT), the Financial Services Authority (FSA), the Financial Reporting Council² (FRC), the

² The FRC is the UK's independent regulator for corporate reporting and governance. The FRC is funded by the UK Government, the accounting profession and by the business community (currently through listed companies).



- The Financial Services and Markets Act 2000 provides the FSA, an independent non-governmental body, with statutory powers.
- Her Majesty's Treasury appoints the FSA's board, consisting of a chairman, chief executive officer, three managing directors and 11 non-executive directors. This board sets the overall policy.
- The FSA is the UK Listing Authority (UKLA) and hence the authority in the UK for the listing of company shares and other securities for trading on public stock exchanges.
- The FSA governs listing by the application of the Listing Rules, which control the trade by Issuers, of their securities on the LSE (London Stock Exchange).
- The Listing Rules are published by the FSA.
- The Combined Code of Corporate Governance ("the Code") dated July 2003, published by the FRC, is annexed to the Listing Rules. The Code reflects guidance produced by Higgs, Smith and Turnbull.

4.5 INTERNAL CONTROL AND RISK MANAGEMENT

It has long been recognised that directors have a primary responsibility for the stewardship of investors' assets and the protection of their investment. A company's *system of internal control* has as its main purpose the identification and management of risks that might impede the achievement of the company's business objectives and thereby reduce the value of shareholders' investments. Internal control and risk management are thus inextricably linked and are integral to the discharge of the directors' responsibilities.

4.6 EMBEDDING INTERNAL CONTROL AND RISK MANAGEMENT

The systems of internal control and risk management adopted by different companies will vary according to company-specific factors, including the nature of the business, the markets and regulatory environments in which the company operates and the attitudes of shareholders and directors towards risk taking. In all cases, however, the board is responsible for ensuring the development and maintenance of an embedded system of internal control and risk management, based on a continuous cycle of activities encompassing the company's policies and procedures, the allocation of tasks and responsibilities, its communication processes and its cultural and behavioural norms.

4.7 SUMMARY

It is the duty of directors to establish and maintain a system of internal control (Cadbury, OECD and the Combined Code 2003). It is generally accepted that an internal audit system encompasses the politics, processes, tasks and behaviours, which combined facilitate its effective and efficient operation. The Hampel Committee challenged the practicalities of the Cadbury recommendation that the accounting profession initiates the development of criteria for assessing the effectiveness of a company's system of internal control and concluded auditors should not be required to report publicly on directors' statements. The Higgs Report considered that it was the role of the non-executive directors to satisfy themselves that financial controls and systems of risk management are robust and defensible. Smith explained that it is the role of boards to establish an audit committee whose responsibilities include the review of a company's internal control system and where appropriate risk management systems. A company's system of internal control has a key role in the management of risks that are significant in accomplishing the business objectives (Turnbull).

Implementing Turnbull explains the benefits of risk management and its ability to make companies more flexible and responsive to market fluctuations. It is now commonly recognised that as part of its accountability to shareholders for the strategic direction of the company and the safeguarding of its assets, the board of directors has ultimate responsibility for ensuring the existence of an appropriate system of internal control and risk management. The responsibilities for a company's system of internal control and risk management has become more formalised over time with the progressive development of corporate governance. Additionally Turnbull states that a company's objectives, its internal organisation and the environment in which it operates are continually changing. Hence a sound system of internal control depends on a thorough and regular evaluation of the nature and extent of the risks to which the company is

exposed. He argues that as profits are in part the reward for successful risk taking in business, the purpose of internal control is to help manage and control risk appropriately.

4.8 REFERENCES

- Cadbury Committee on the Financial Aspects of Corporate Governance (1992) *Report of the Committee on the Financial Aspects of Corporate Governance: The Code of Best Practice*, Gee Publishing.
- Hampel Committee on Corporate Governance (1998) *Committee on Corporate Governance: Final Report*, Gee Publishing.
- Higgs Review (2003) *Review of the Role and Effectiveness of Non-Executive Directors*, published by the Department of Trade and Industry, UK. Printed by the Stationery Office.
- Jones, E.M. and Sutherland, G. (1999) *Implementing Turnbull, A Boardroom Briefing*, Centre for Business Performance, The Institute of Chartered Accountants in England and Wales, September 1999, London.
- OECD (2004) *OECD Principles of Corporate Governance*, OECD Publications Service, France.
- Smith (2003) FRC, *Audit Committees Combined Code Guidance*, a report and proposed guidance by an FRC appointed group chaired by Sir Robert Smith (2003), The Financial Reporting Council Limited (FRC), January.
- Turnbull (1999) ICAEW, *Internal Control: Guidance for Directors on the Combined Code*, published by the Internal Control Working Party of the Institute of Chartered Accountants in England and Wales led by Nigel Turnbull, September 1999.

Developments in Risk Management in the Public Sector

The previous chapter examined developments in internal control and the relationship between risk and internal control. This chapter examines the developments in risk management in the public sector. Governments have always been concerned with the protection of their citizens from risk. However, it may be argued, they now have to deal with risks from a more diverse range of sources, emanating from the broad spectrum of public services currently provided. Government departments are responsible for services such as the provision of health care and education, protecting the environment, regulating industry and the payment of social services. All involve some degree of risk. But this is no real surprise, as there has been a similar broadening of business risk exposure.

Like governments, multinational mining and petrochemical companies for instance, have to deal with terrorism, the vulnerability of IT systems and exposure from outsourcing along with environmental, safety, project and reputational risk. Also, like the increase in expectations of listed company stakeholders, the government would appear to be acutely aware of the increase in citizen's expectations of government performance. In particular the public has come to expect fewer external risks to health, together with financial and physical security. Yet this is not the full story. Government is aware of the change in the nature of risk. There are two main drivers, developments in science and technology, and global interconnectedness. The government has to make judgements about issues as diverse as cloning, genetically modified food and drugs, mobile phones and nuclear energy. Additionally it has to protect its citizens from events emanating from the other side of the world, like virus attacks on IT networks, diseases carried by travellers, economic downturn and civil unrest.

5.1 RESPONSIBILITY FOR RISK MANAGEMENT IN GOVERNMENT

The clearest picture that would appear to be available for who is responsible for what within government, in terms of risk management, is included in Figure 5.1. This figure illustrates the roles that the Cabinet Office, HM Treasury and the Office of Government Commerce undertake in the provision of leadership, guidance and advice to government departments, in the implementation of risk management. However, the figure does not mention the cross-government Risk Management Steering Group¹ or the Interdepartmental Liaison Group on Risk Assessment (ILGRA), which were active in 2001. To place this figure in context, recorded below is a description of the primary role of the Cabinet Office, Treasury, Office of Government Commerce and the National Audit Office.

¹ The Risk Management Steering Group was established by the Treasury and the Cabinet Office and chaired by the Treasury. The group included representation from the Treasury, the Cabinet Office, NAO, ILGRA and departments to advise on and facilitate the consistent and coordinated development of policies and guidance relating to risk across central government. It first met in November 2000.

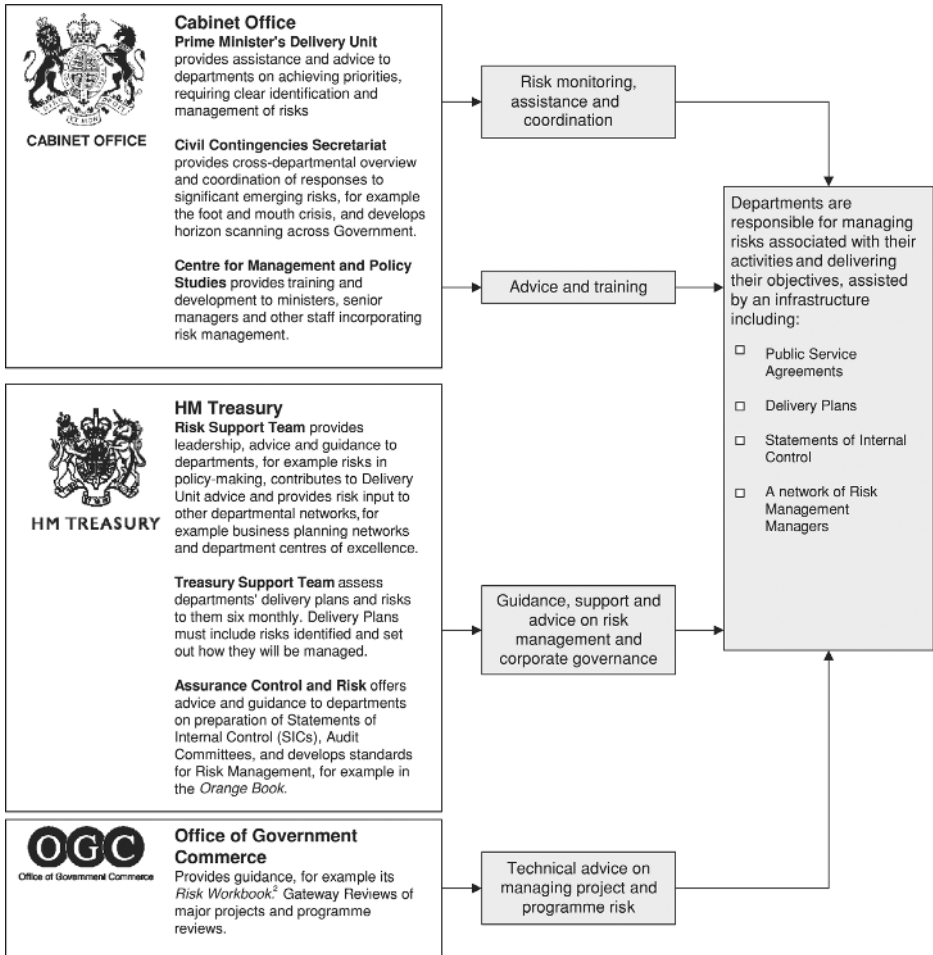


Figure 5.1 Parties responsible for risk management in government. (Source: National Audit Office (2004). An earlier version of this diagram appeared in National Audit Office (2000), which also made reference to the Interdepartmental Liaison Group on Risk Assessment (ILGRA))

5.1.1 Cabinet Office

The Cabinet Office monitor's departments responding to the Modernising Government Action Plan, reports to ministers on progress and is responsible for guidance on the content of risk frameworks. In terms of Strategy and Planning, the Cabinet Office oversees and coordinates policy-making across government, enabling departments to work together to achieve joint objectives. The role of the Cabinet Office's Strategy Unit is to improve policy-making at a strategic level within and between government departments. The Strategy Unit provides the Prime Minister and government departments with the capacity for longer-term thinking, cross-cutting studies and strategic policy work. The Unit was set up in 2002, bringing together the

² The *Risk Workbook* referred to under the Office of Government Commerce (OGC) is part of the OGC's Successful Delivery ToolkitTM and can be found on their website <http://www.org.gov.uk/sdtoolkit/workbooks/risk/index.html>.

Performance and Innovation Unit, the Prime Minister's Forward Strategy Unit, and parts of the Centre for Management and Policy Studies. The unit has three key roles:

- to support the development of strategies and policies in key areas of government in line with the Prime Minister's priorities;
- to carry out occasional strategic audits to identify opportunities and challenges facing the UK and UK Government;
- to develop as a "Centre of Excellence" to enhance strategy across government.

5.1.2 Treasury

The Treasury is responsible for providing guidance to departments on risk management needed to support the production of the annual Statement on Internal Control (SIC), by Accounting Officers. The Treasury, having previously decided to incorporate the principles included within the Turnbull Report (see Chapter 4) into central government, requires departments and other bodies to produce a Statement on Internal Control as part of their annual accounts, the first time being for the financial year 2001/2002. The SIC has to be signed off by the Accounting Officers. As part of this statement, departments have to report on their risk management processes. To assist departments to develop their risk management processes, the Treasury issued *The Orange Book* (its formal title being *Management of Risk, a Strategic Overview*) in 2001 (HM Treasury 2001), which has subsequently been revised (HM Treasury 2004). The Treasury is also working with departments on the improvement of risk management and internal control as part of the corporate governance agenda.

5.1.3 Office of Government Commerce

The Office of Government Commerce (OGC) is an independent office of the Treasury with its own chief executive appointed at permanent secretary level. As an overview, OGC has responsibility for delivering corporate governance across government and providing guidance and advice on risk management, appraisal and evaluation as well as policy for internal audit activity. The organisation plays an important role in the government's efficiency and modernisation agendas. The OGC structure comprises four service areas and the OGCbuying.solutions trading arm. The service area labelled "Better Projects" includes Gateways, embedding Centres of Excellence, mission critical reporting, intervention and support. For all high-risk projects, "Better Projects" mobilises highly experienced review teams, independent of the client department, providing advice on how to achieve project success; for medium risk reviews, team leadership and logistics are provided by OGC; and departments adopt the process for their own reviews for low risk projects. "Better Projects" is helping Centres of Excellence (COEs) to be able to undertake medium and low-risk reviews for themselves and for their agencies and Non-Departmental Public Bodies (NDPBs).

5.1.4 National Audit Office

The National Audit Office³ (NAO), while not being part of the government, is appropriate to mention here, due to its close involvement with the workings of government and the large

³ The NAO is independent of government (including its finances) but it has no corporate status. The NAO's independence is derived from the unique position of the Comptroller and Auditor General (C&AG), the head of the NAO. The role of the C&AG is to report to Parliament on the spending of central government money. The C&AG has ultimate discretion as to his work programme and how it

number of risk management reports it produces relating to the delivery of public services. As Gus O'Donnell (Permanent Secretary, HM Treasury) stated in the NAO's 2003 annual report:

Risk management is a critical business process, not a tick in the box exercise. The NAO has made an important contribution to our thinking on how this works in large and complex sector organisations.

Each audit is planned to obtain sufficient, appropriate evidence on which to base the audit opinion. As part of their financial audits they review statements of internal control and as declared in their 2003 report,

These statements flow from the recognition that effective risk management lies at the heart of improving organisational performance.

5.2 RISK MANAGEMENT PUBLICATIONS

The UK Government has a very chequered history over recent years, in the management of risk, with several highly publicised failures, from the handling of the BSE epidemic to expensive IT failures. As a result, government has issued a wealth of risk management publications in the last five years to aid the delivery of services. The central government drive for improvement in the delivery of local government services, the requirement for financial statements to be accompanied by statements on internal control and the achievement of value for money, has also led to a series of publications for local authorities. For ease of assimilation the key reports and guides are listed chronologically in Box 5.1.

These publications provide businesses with another source of information and reference on the subjects of: sources of risk; procedures; processes; methods of assessment; problems of embedding risk management; allocation of responsibility; and communication. In addition, businesses do not exist in a vacuum. They have to engage with the environment they operate within. A key component of the structure of the environment is government. The way governments deal with risk is reflected in legislation, regulation and their handling of domestic and global crises. This behaviour directly impacts on businesses.

A number of these publications are examined below to describe the thinking behind government's approach to risk management, as a backdrop to understanding the development of risk management in the UK and to aid management of risk in the business sector. The following review of the publications is not to provide a detailed critique but an understanding of their focus, drivers, lessons learnt, tools and techniques and to distil issues relevant to business.

is executed. The budget of the NAO is determined by the Legislature on a recommendation from the C&AG. The Public Accounts Commission, a committee of Members of Parliament established in 1983, considers the NAO's plans and budget. The Commission then makes a recommendation to the House of Commons to accept the budget. As a consequence of his office, the C&AG is an Officer of the House of Commons, is independent of the Executive and the Judiciary, and has no relationship with investigating agencies. The staff of the NAO are not civil servants. The role of the NAO is to audit the financial statements of all government departments and agencies and many other public bodies, to provide an independent opinion. It also reports to Parliament on the value for money with which these bodies have spent public money. As well as providing accountability to Parliament, the NAO aims to bring about real improvements in the delivery of public services. Each audit is planned to obtain sufficient, appropriate evidence on which to base the audit opinion. The C&AG has no powers to disallow expenditure, to impose surcharges or to take punitive action, or to follow public money wherever it goes.

Box 5.1 Reports and guides

Risk management guides and reports, listed chronologically:

| | | |
|--------------------|---|------|
| • Cabinet Office | <i>Successful IT: Modernising Government in Action</i> | 2000 |
| • NAO | <i>Supporting Innovation: Managing Risk in Government Departments</i> | 2000 |
| • HM Treasury | <i>The Orange Book</i> | 2001 |
| • Audit Commission | <i>Worth the Risk?</i> | 2001 |
| • CIPFA/SOLACE | <i>Corporate Governance in Local Government – A Keystone for Community Governance: The Framework</i> | 2001 |
| • OGC | <i>Management of Risk: Guidance for Practitioners</i> | 2002 |
| • DEFRA | <i>Risk Management Strategy</i> | 2002 |
| • Cabinet Office | <i>Risk: Improving Government's Capability to Handle Risk and Uncertainty</i> | 2002 |
| • OGC | <i>Procurement Guide 04 Risk and Value Management</i> | 2003 |
| • HM Treasury | <i>The Green Book</i> | 2003 |
| • CIPFA | <i>Guidance on Internal Control and Risk Management in Principal Local Authorities and other Relevant Bodies to Support Compliance with the Accounts and Audit Regulations 2003</i> | 2003 |
| • NAO | <i>Managing Risks to Improve Public Services</i> | 2004 |
| • HM Treasury | <i>Management of Risk – Principles and Concepts (The Orange Book – updated)</i> | 2004 |

5.3 SUCCESSFUL IT

The government, in its commitment to modernising and delivering improvements in public services, wished to harness information technology (IT). The e-government strategy, published in April 2000, set out its commitment to using IT to deliver services in new ways. IT was seen as a tool to deliver services faster, more effectively and in innovative ways. However, it was not finding it easy to implement, and projects were often complex and fraught with risk. The aim of the report *Successful IT: Modernising Government in Action*, published by Cabinet Office in May 2000, was to improve performance by avoiding past mistakes (Cabinet Office 2000). The report states that in the past, government IT projects had too often missed delivery dates, run over budget or failed to fulfil requirements. This review was set up to improve the way government handled IT projects. The report was based on evidence from extensive research undertaken in the UK public and private sectors and abroad, which showed that there were a great many reasons why failures occurred. The report concluded that these failures could not be addressed by one or two catch-all measures and, accordingly, the report made a series of recommendations.

The review of projects found that the quality of risk management varied widely across government with its application ranging from simple lists (without ownership of risks or actions to mitigate them), to the allocation of full-time risk managers with comprehensive risk registers. Some of the reasons for poor risk management were considered to include those listed in Box 5.2.

Box 5.2 Reasons for poor risk management

Successful IT: Modernising Government in Action: reasons for poor risk management.

- Having a narrow focus looking only at the inward-facing project risks that are tangible and within the project manager's control, without considering risks to the organisation's business as a whole;
- Relying too much on tabulating numerous risks in a register without prioritising them or considering the extent to which they may be correlated with each other;
- Failing to understand that the ultimate risks of not meeting the business objectives or realising the business benefits, or ending up with an unsatisfactory delivery of services to the public, cannot be transferred to a partner or supplier;
- Failing to understand or define the boundary between the responsibilities of the supplier and the purchasing department or agency;
- Depending on the contract or its penalty clauses to mitigate risk rather than taking action or forming effective contingency plans; and
- Failing to monitor the effectiveness of mitigating action and contingency plans, or to refer risks, which fall outside of tolerance, to the appropriate level, in good time.

Additionally the report concluded that there was evidence of:

- a failing to take end users' needs into account;
- inadequate guidance to ensure good risk management;
- a lack of support for projects at the highest level, in terms of an awareness of the importance of business risk management;
- a missing link between the effective analysis and management of risk;
- inadequate reporting and upward referral of problems without inundating senior management with detail; and
- the omission of tolerance levels for cost, time and functionality being set at the start of the project, beyond which the project manager cannot go without seeking approval.

The report recommends the use of a *Project Profile Model* and a *Summary Risk Profile* to aid risk management. A *Project Profile Model* is described as being used to determine the risk profile and corresponding risk strategy of a project, whereas a *Summary Risk Profile* is a simple mechanism to increase the visibility of the risks and facilitate the prioritisation of risk management action. Both are described in Appendix 1.

5.4 SUPPORTING INNOVATION

The aim of the report entitled *Supporting Innovation: Managing Risk in Government Departments* by the NAO is to (1) promote improvements in risk management by departments, by identifying examples of good practice (for both public and the private sector) and (2) convey the findings of a survey conducted to provide an overview of the extent and practice of risk management across organisations responsible for the delivery of public services. The report sets out why risk management is important, how well risk management is understood and implemented by departments, agencies and non-departmental bodies (NDPBs) which for the purposes of the report are collectively described as "departments" and what more needs to be done to improve risk management.

5.4.1 Part 1: Why risk management is important

The report suggests that risk management can lead to better service delivery, more efficient use of resources, better project management, help minimise waste, fraud, poor value for money and promote innovation. Additionally, that the reputation of departments can suffer when services fail to meet the public's expectations.

5.4.2 Part 2: How well risk management is understood and implemented by government departments

Understanding: While respondents agreed that risk management was important to the achievement of their objectives, they expressed their lack of awareness of how it could address the risks that threaten the delivery of services.

How implemented: Thirty eight per cent of departments did not routinely assess risks. The most commonly identified risks were financial, project, compliance and reputational.

Actions implemented by departments: While departments stated they were managing risks, the absence of early warning indicators for alerting senior managers to changing risks and regular reports to senior management, it was thought, might have meant that key risks were not being identified or identified too late for effective action.

5.4.3 Part 3: What more needs to be done to improve risk management

The survey found acceptance and recognition of the importance of risk management but less certainty over implementation. This was being addressed in a number of ways. Examination through case studies of good practice suggested that six essential requirements needed to be in place, if risk management was to be effective. These are included in Box 5.3.

Box 5.3 Six essential requirements for effective risk management

1. Risk management policies and the benefits of effective risk management should be clearly communicated to all staff.
2. Senior management need to support and promote risk management.
3. The department's culture should support well thought through risk taking and innovation.
4. Risk management should be embedded in management processes.
5. The management of risk should be closely linked to the achievement of objectives.
6. Risks associated with other organisations should be assessed and managed.

5.5 THE ORANGE BOOK

The first edition of *The Orange Book*, published by HM Treasury, is entitled *Management of Risk, a Strategic Overview* (HM Treasury 2001). It declares its aim is to provide some pointers to the development of a strategic framework for the organisational consideration of risk. Additionally it describes tools and techniques, which may be adopted by organisations to guide them in the development of their risk management processes across the spectrum of risk encountered in day-to-day business. This publication, and its successor, is widely referred

to in other government publications and provides an introduction for those new to the subject. It describes a process that had been in use in the private sector for some considerable time. It describes the risk management process as a cycle composed of the following steps:

- identify the risks and define a framework;
- evaluate the risks;
- assess the appetite;
- identify suitable responses to risk;
- gain assurance about the effectiveness;
- embed and review, and back to the beginning;
- identify the risks and define a framework.

5.5.1 Identify the risks and define a framework

The Orange Book describes three important principles for analysing risk, which are universally relevant. Summarised they are (1) adopting a consistent approach throughout the organisation, (2) ensuring that there is a clear structure to the process and (3) establishing a framework approved at senior level. It goes on to say that “a strategic approach to risk management depends on identifying risks against key organisational objectives”. Interestingly it says that framework implementers have found it beneficial to confine the objectives to a small number. Certainly with too many objectives the process becomes unwieldy and difficult to manage.

It describes that to identify risk it is appropriate to adopt an appropriate tool and that the two most commonly used tools are (1) “commissioning a risk review” and (2) “risk self-assessment”. The first tool is described as the formation of a team, which conducts a series of interviews with key staff to identify the risks to the operations and activities undertaken to achieve its objectives. The second tool is described as a bottom-up approach where each level and part of the organisation is invited to identify the risks to its activities through a questionnaire or a facilitated workshop approach. These “tools” are common ways of identifying risk and could more readily be described as processes. A summary of the most common categories of risk and the “risk self-assessment” tool are recorded in Table A2.6, Appendix 2.

5.5.2 Assign ownership

The book describes risk management being most effective when ownership of risk is allocated to an appropriate senior official. It describes alternative means of risk ownership to suit different organisation structures such as allocation to (1) the risk management committee members reporting to an accounting officer, (2) board members or (3) executive members of the audit committee. It states that regardless of the means of allocation (see items (1) to (3)), a mechanism must be established to report to the accounting officer who has ultimate reporting responsibility and that committee membership does not diminish an attendee’s individual risk management responsibilities.

5.5.3 Evaluate

The experience of the authors permeates the text when it says that evaluation is important to prioritise risk and that while some risks such as financial risks lend themselves to numerical assessment, reputational risk, say, can only be assessed subjectively. In addition this experience is evident when it declares that when creating models to evaluate risks in combination, it is

often necessary to undertake an iterative process in their development, particularly when the initial results do not withstand scrutiny.

5.5.4 Assess risk appetite

It considers that as part of an overall risk strategy, it is important to understand an organisation's risk appetite when considering response to risk. It defines risk appetite as "the amount of risk to which the organisation is prepared to be exposed before it judges that action is necessary". It goes on to say that a balance has to be struck to accomplish value for money when considering the degree of risk exposure and the cost of the risk response.

5.5.5 Response to risk

The four common responses are described using the terms Transfer, Tolerate, Treat and Terminate in lieu of, say, Transfer, Retain, Reduce and Remove. The term Terminate is used here to describe the situation where a risk is too high to be acceptable to the organisation and so the activity that is generating the risk has to be stopped or terminated. In the private sector the term Remove relates to undertaking an activity in another way or not undertaking it at all. The action of Treat is described as implementing an "internal control", an action undertaken from within the organisation designed to contain the risk to an acceptable level. "Control" is described as "any action, procedure or operation undertaken by management to increase the likelihood that activities and procedures achieve their objectives". Four types of control are described as follows:

- Detective Controls: to identify if undesirable outcomes have occurred.
- Directive Controls: to ensure that a particular outcome is achieved.
- Preventive Controls: to limit the possibility of an undesirable outcome being realised.
- Corrective Controls: to correct undesirable outcomes which have been realised.

A proportionality of control is recommended where the control put in place is proportional to the risk. Other than matters which relate to human life, it is suggested that it is normally sufficient to design control to give a reasonable assurance of confining likely loss within the risk appetite of the organisation.

5.5.6 Gain assurance

The book suggests that assurance is accomplished by reporting and internal audit. In addition that reporting enables senior management to understand the effectiveness of risk management whereas internal audit is described as being required to provide assurance on the adequacy of the embedded risk and control mechanism.

5.5.7 Embed and review

The case is made that the objectives within an organisation are hierarchical, cascading down from directorates to divisions to teams and hence that responsibility for risk management should also be hierarchical, reflecting the same structure. Following the same theme a parallel delegation of risk responsibility should exist at each level of objectives. That the risk management process, it is thought, should be intrinsic to the way an organisation operates and be

incorporated in day-to-day activities. Risk management should be dynamic, regularly updated to reflect changes within the environment within which the organisation operates, to reflect corporate governance requirements.

5.6 AUDIT COMMISSION

The Audit Commission⁴ is an independent body responsible for ensuring that public money provides value for money, which is spent economically, efficiently and effectively, to achieve high quality local and national services for the public. Its remit covers more than 15 000 bodies, who between them spend nearly £125 billion of public money every year. Its work covers local government, housing, health, criminal justice and fire and rescue services. It describes itself as both an independent watchdog, providing important information on the quality of public services, and a driving force for improvement in those services, providing practical recommendations and spread best practice.

The Audit Commission's publication *Worth the Risk?* was written to address either the absence or minimal formal activity within councils, to evaluate and manage risk (Audit Commission 2001). The paper aims to raise the awareness about the need to address key strategic risks and to provide good practice guidance for councils to manage such risks in a more effective and formalised way. The paper considers that while formal systems of risk management were being established across all parts of the private and public sectors, risk management developments in local government were totally dependent on initiatives taken by individual authorities rather than as a sector-wide response. As a consequence the Commission considered local government was in danger of falling behind best practice. The paper describes its intention as wishing to help local government bodies in England and Wales to improve the way in which they identify, evaluate and manage significant risks. Additionally the paper is aimed at helping local government members and officers assess whether their current risk management activities are satisfactory and are developing in line with the best value initiative. The paper states that it is primarily written for elected members and officers of local government bodies in England and Wales. The paper is composed of five chapters. The first provides background to the practice of risk management, the second looks at the application of risk management to local government, the third and fourth chapters examine the relevance to members and officers respectively and the last chapter proposes pitfalls to be aware of.

Interestingly the Commission finds it necessary to place risk management in context with governance and internal control.

It defines governance as: "the system by which local authorities direct and control their functions and relate to their communities. In other words, the way in which organisations manage their business, determine strategy and objectives and go about achieving those objectives. The fundamental principles are openness, integrity and accountability."

Internal control is defined as: "those elements of an organisation (including resources, systems, processes, culture, structure and tasks) that, taken together, support people in the achievement of business objectives. Internal financial systems form part of the wider system of internal controls." In addition the Commission states that an authority's system of internal control is part of its risk management process and has a key role to play in the management of significant risks to the fulfilment of its business objectives.

⁴ As an independent auditor, the Commission monitors spending to ensure public services are good value for money. Its mission is to be a driving force in the improvement of public services. It promotes good practice and assists those responsible for public services to achieve better outcomes for members of the public, with a focus on those people who need public services most.

Risk management is seen by the Commission as an integral part of good governance and the constituents of good risk management are seen to be in evidence when:

- there is a shared awareness and understanding within the authority;
- there is regular and ongoing monitoring and reporting of risk including early warning mechanisms;
- an appropriate assessment is made of the cost of operating particular controls relative to the benefit obtained in managing the related risk;
- the authority conducts, at least annually, a review of the effectiveness of the system of internal control in place; and
- the authority reports publicly on the results of the review, and explains the action it is taking to address any significant concerns it has identified.

The report includes a number of case studies and Case Study 2 relates to the application of risk management by Liverpool City Council to its main areas of concern which include:

- an excessive number of committees and member groups;
- a failure to produce effective corporate plans;
- poor communications, especially with the workforce;
- poor-quality high-cost services;
- disengagement from local people;
- weak or non-existent corporate and strategic management as a result of chronic departmentalism; and
- hostility and mutual distrust between councillors and senior officers.

In response the council produced a strategic framework of 42 risks, which were prioritised with control strategies being developed to address the higher-order risks.

5.7 CIPFA/SOLACE CORPORATE GOVERNANCE

In 2001 the Chartered Institute of Public Finance and Accountancy (CIPFA)⁵ in conjunction with the Society of Local Authority Chief Executives and Senior Managers (SOLACE)⁶ produced a framework for use by local authorities to review their existing corporate governance arrangements and to prepare and adopt an up-to-date local code of corporate governance. This guidance, called *Corporate Governance in Local Government – A Keystone for Community Governance: The Framework*, is intended to be followed as best practice for establishing a locally adopted code of corporate governance and for making adopted practice open and explicit (CIPFA/SOLACE 2001). The framework uses the terms “principles”, “dimensions”, “local codes” and “elements” within the text and it would have been helpful if these had been explained at the outset, together with guidance on how they relate to each other. The framework states that authorities must be able to demonstrate that they are complying with the underlying *principles* of good governance (openness and inclusivity, integrity and accountability)

⁵ The Chartered Institute of Public Finance and Accountancy (CIPFA) is one of the leading professional accountancy bodies in the UK and the only one that specialises in the public services. It is responsible for the education and training of professional accountants and for their regulation through the setting and monitoring of professional standards. Additionally CIPFA provides courses, conferences and publications and a range of advice, information, training and consultancy services. It is a membership organisation with more than 15 000 members and is part of the accountancy profession within the UK and internationally. It is a key stakeholder in the public services where governments across the world are seeking to engineer major reforms.

⁶ The Society of Local Authority Chief Executives and Senior Managers (SOLACE) is the representative body for senior strategic managers working in local government. Like other vocational organisations, its members are drawn from a variety of professional backgrounds.

by translating them into a framework which seeks to ensure that they are fully integrated into the conduct of the authority's business. The framework is subdivided into four sections: (1) Introduction to Corporate Governance in Local Government, (2) Framework for a Code of Corporate Governance for Local Authorities, (3) The Elements of Corporate Governance and (4) Annual Review and Reporting. The guidance argues in Section 2 that the fundamental *principles* of corporate governance need to be reflected in the five different *dimensions* of a local authority's business (which I interpret as the aims or goals). These *dimensions* are described as community focus, service delivery arrangements, structures and processes, risk management and internal control and standards of conduct.

Of interest here is Dimension 4, entitled "Risk Management and Internal Control", which states that an authority needs to establish and maintain a systematic strategy, framework and process for managing risk (again without spelling out what these terms are intended to mean). Together, the framework says, these arrangements should:

- include making public statements to stakeholders on the authority's risk management strategy, framework and process to demonstrate accountability;
- include mechanisms for monitoring and reviewing effectiveness against agreed standards and targets and the operation of controls in practice;
- demonstrate integrity by being based on robust systems for identifying, profiling, controlling and monitoring all significant strategic and operational risks;
- display openness and inclusivity by all those associated with planning and delivering services, including partners; and
- include mechanisms to ensure that the risk management and control process is monitored by continuing compliance to ensure that changes in circumstance are accommodated and that it remains up to date.

Section 3 of the framework calls for local authorities to develop local codes of corporate governance, which comprise the following *elements* (which I interpret to be the activities). This section uses the same headings as Section 2, commencing with community focus again. The element entitled "Risk Management and Internal Control" lists what I call the activities to be undertaken to satisfy this framework:

- develop and maintain robust systems for identifying and evaluating all significant risks which involve the proactive participation of all of those associated with planning and delivering services;
- put in place effective risk management systems, including systems of internal control and an internal audit function. These arrangements need to ensure compliance with all applicable statutes, regulations and relevant statements of best practice and need to ensure that public funds are properly safeguarded and used economically, efficiently and effectively and in accordance with the statutory and other authorities that govern their use;
- ensure that services are delivered by trained and experienced people;
- put in place effective arrangements for an objective review of the effectiveness of risk management and internal control, including internal audit;
- maintain an objective and professional relationship with external auditors and statutory inspectors; and
- publish on a timely basis, within the annual report, an objective, balanced and understandable statement and assessment of the authority's risk management and internal control mechanisms and their effectiveness in practice.

In the final section of the framework, Section 4, it states that every local authority should publish a statement annually in its financial statements on how it is complying the principles set out in the framework and how it is complying with its own local code of corporate governance. In Section 1 of the framework it repeats this same statement, but also adds arrangements should be made by authorities for their local code of governance to be in place by 31 March 2002.

5.8 M_o_R

The full title of this publication is *Management of Risk: Guidance for Practitioners* and has been branded by the authors, the OGC IT Directorate, as M_o_R (Office of Government Commerce 2002). The guide declares that its purpose is to help organisations to put in place effective frameworks for taking informed decisions. The guide is subdivided into eight chapters. Following an introduction, the second chapter describes the key principles underpinning risk management and the third, the management of risk. Chapters 4 to 7 inclusive describe managing risk at the strategic, programme, project and operational levels respectively. Each of these four chapters include the common headings of: types of risk, where to apply risk management, when to do it, who is involved and policy for risk management. The final chapter, Chapter 8, discusses the range of techniques available to support the risk management process. A series of Annexes provide supporting information.

Chapter 2 examines where risk occurs in an organisation in terms of decision making and splits decision making into four types or levels: strategic or corporate, programme, project and operational (Figure 5.2). The guide correctly makes the point that a risk may materialise initially in one level but subsequently have a major impact at a different level.

Chapter 8 describes a series of techniques that can be used to support the management of risk, which are reproduced in Box 5.4. The guide makes the observation that experience in managing risk is a more critical factor for success than the choice of tools and techniques.

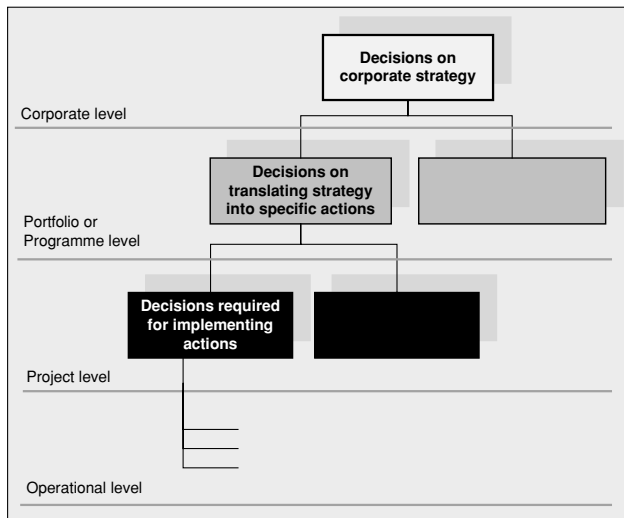


Figure 5.2 Decision making within the management hierarchy of an organisation

Box 5.4 Consequence categories

| Strategic/corporate level | Programme level | Project level | Operational level |
|--|------------------------------|--|--|
| NPV (net present level) | Decision trees | Simulations | Simulations |
| IRR (internal rate of return) | CPA (critical path analysis) | LCC | LCC |
| ROI (return on investment) | Cost/benefit analysis | Decision trees | Performance analysis |
| Cashflow analysis | Sensitivity analysis | Risk tables | Reliability analysis |
| Currency analysis | Stakeholder risk analysis | PERT (Programme Evaluation and Review Technique) | Queuing analysis |
| SWOT analysis | Simulations | Performance analysis | Algorithm analysis |
| Scenarios | Scenarios | Reliability analysis | Capability analysis |
| Cost/benefit analysis | LCC (lifecycle analysis) | Capability analysis | Top-down analysis |
| Decision trees | | Monte Carlo simulation | HAZOP (HAZard OPerability, analysis, risk registers and databases) |
| CRAMM ⁷ for business impact security requirements | | Influence diagrams CRAMM | CRAMM |

5.9 DEFRA

The Department of the Environment, Food and Rural Affairs (DEFRA) is a large department within the UK Government and, as it declares in its five year strategy,⁸ “brings together the interests of farmers, the countryside, the environment and the rural economy, the food we eat, the air we breath and the water we drink”. Hence the breadth of subjects the department has to address is vast, from reducing carbon emissions, to emergency planning to address flooding

⁷ In 1985 the UK Government’s Cabinet Office tasked the Central Computer and Telecommunications Agency (CCTA) with investigating the risk analysis and management methods currently in existence within Central Government for information security. Following this investigation, a new method was developed by the CCTA, which drew upon all of the existing best practices under the title of the CCTA Risk Analysis and Management Method (CRAMM). In 1987 a software tool was launched that automated the CRAMM process. Due to its success within government, a commercial version of CRAMM soon followed in 1988 that was tailored specifically to the needs of commerce. At the same time, an independent users group was formed which continues to provide a valuable forum for users to meet and help shape the development of the method. Insight Consulting currently manages CRAMM on behalf of the Crown.

⁸ HM Government (2004) *Delivering the Essentials of Life – Defra’s Five Year Strategy*, December.

and animal disease (such as BSE⁹), to agricultural policy. It has a large agenda of regulation that seeks to improve the environment, protect public health and seek to deliver high standards of animal welfare.

5.9.1 Risk management strategy

DEFRA, in 2002, published their *Risk Management Strategy* (DEFRA 2002). While the approach is now very familiar in terms of the stages of risk management and the risk response categories adopted, careful thought has been given to what risk management means for the department. Consideration has been given to the sources of risk, the consequences should it materialise, how risk management will be embedded in the organisation and the potential benefits. In accordance with the forward to the strategy written by Brian Bender (Permanent Secretary), the department required a clear understanding of how the risks facing it should be managed. Doing this properly, Brian Bender declared, “is central to planning to succeed and avoiding failure; to meeting our key objectives and targets; to creating confidence in a watchful public; and meeting the demands of good corporate governance”. Significantly Bender declared: “doing this needs to be a living process, not a ‘tick-box’ exercise”. The strategy is divided into six sections: (1) introduction and purpose, (2) aim, principles and implementation, (3) identifying risks, (4) assessing risks, (5) addressing risks and lastly (6) reviewing and reporting risks. Each of these areas is discussed in Appendix 3, as they describe implementation issues pertinent to establishing and imbedding risk management systems within businesses. To ignore processes and experience of government is to deprive businesses of useful and pertinent background knowledge.

5.10 STRATEGY UNIT REPORT

In July 2001, the Prime Minister, Tony Blair, announced the Strategy Unit¹⁰ study on risk and uncertainty. A clear aim of the study and the accompanying report was to improve government’s handling of risk. The study was concerned that there was a danger that risk management would be seen as a mechanical process with the potential for real issues being missed. The report arising from the study was called *Risk: Improving Government’s Capability to Handle Risk and Uncertainty* (Cabinet Office 2002). Of all the government reports on the subject of risk management produced at the time of writing, this report has to be one of the most lucid, erudite and well researched. In his foreword, Tony Blair makes four points which will strike a chord with most organisations that have suffered adverse risk events and have grappled with embedding risk management. The report states that the desire of government is to:

- do more to anticipate risks so that there are fewer unnecessary and costly crises (citing BSE and failed IT contracts as examples);
- ensure that risk management is part of delivery plans;
- get the right balance between innovation and change on the one hand and avoidance of shocks and crises on the other;
- improve the management of risk and its communication.

⁹ BSE (Bovine Spongiform Encephalopathy) known as “mad cow disease” is a relatively new disease of cattle, first recognised and defined in the UK in 1986. The disease reached epidemic proportions. The disease peaked in 1992 after which time there has been a steady decline. It is a neurological disease which lasts for several weeks and is invariably progressive and fatal. BSE is one of the family of TSEs (Transmissible Spongiform Encephalopathies). CJD (Creutzfeldt-Jacob Disease) is an example of spongiform encephalopathies found in humans. Like the animal disorders, they are progressive and universally fatal.

¹⁰ The Strategy Unit was formerly known as the Performance and Innovation Unit.

While one of the catalysts for the study was the Phillips Report (Lord Phillips 2000) on BSE,¹¹ the study was established with a remit to look broadly across the whole of government's involvement in managing risk. The report produced by the study made recommendations for government action to improve its handling of risk. It built on a number of reports such as those issued by the National Audit Office (2000) and the Public Accounts Committee (2001), which highlighted the need for improvement. The study did not seek to provide detailed technical advice on how to undertake risk management but rather to develop a broad framework for understanding risk, managing risk and risk allocation together with proposals for organisational coherence and cultural change. The study, while recognising that at the heart of the handling of risk is judgement, strove to explore where analysis should end and judgement commence. With some joined-up thinking, the report (in the main) adopts the risk management language contained within the government OGC guidance (Office of Government Commerce 2002). It does, however, make some departures with an example being the term "handling risk" which embraces not only risk management but also wider issues such as the government's approach, its roles and responsibilities and its organisational culture. The report is structured into five areas: (1) the government's role and responsibilities, (2) improving government's handling of risk, (3) improving capacity, (4) handling the communication of risk and (5) the role of leadership and culture change. Each of these areas is discussed in Appendix 4, as there are strong parallels between the problems encountered by governments and businesses in embedding risk management.

5.11 RISK AND VALUE MANAGEMENT

Procurement guide 04 of the Achieving Excellence in Construction series, entitled *Risk and Value Management*, explains how risk and value are managed (Office of Government Commerce 2003). These processes, the guide considers, are fundamental to the successful delivery of projects and recommends their use throughout the life of a project. This short guide summarises the key principles of risk and value management in the context of construction projects and describes the practical steps to be undertaken. The guide provides key messages on the management of risk which are included in Box 5.5.

In addition the guide provides guidance on the timing of the application of risk management in terms of the OGC Gateway Process, describes the stages of the risk management process (common to other publications) and gives a traffic light probability impact risk matrix for scoring risks. Risk responses are described using the headings avoidance, reduction, transfer and retention/acceptance.

Risk feedback: The guide recommends that feedback should be encouraged from all those involved in the delivery of the project on how well risks were managed, and how this could be improved. This information can be used to improve risk management performance in future projects and that it should be part of the post-project review.

Project execution plan: The guide recommends that the project execution plan should include the risk register and the risk management plan.

¹¹ See Section 5.9.

Box 5.5 Key messages about managing risk

Extract from *Risk and Value Management*.

- Process: a common risk management process should be understood and adopted at all levels within the integrated project team;
- Register: the risk register is regularly reviewed and updated throughout the project life-cycle;
- Maintenance and demolition: risks inherent in the maintenance and demolition of the facility should be considered during design development and the decision about risks kept on the register for future reference;
- Facilities management: the FM risks should be considered and owned early on – usually by the client;
- PLC: the project lifecycle runs until the facility is demolished or disposed of (whoever acquires it in a disposal will need to know the risks on transfer);
- Time: there must be adequate time and effort early on to identify and analyse the risks and to develop a risk management plan governing how they will be managed and funded (the calculation of the risk allowance);
- Allocation: risks should be allocated to individual risk owners within the integrated project team who should fully understand the risks for which they are responsible;
- Commitment: clients should not make any financial commitment to a project or a major change, unless the integrated project team has identified and assessed the risks, allocated them and ensured that management action is in place;
- Ongoing management: the risks should be managed actively throughout the life of the project in accordance with the risk management plan;
- Retention: the plan should deal with all risks, whether retained by the client or transferred to others in the integrated project team;
- Business case: the business case should include a time element and the risks of that changing should be kept under review; and
- Procurement: risk management and the procurement route are interrelated. Risk allocation should be considered a part of the procurement route, as different routes will entail differing degrees of risk transfer.

Risk allowance: The guide explains that the budget (for a project) should be composed of two elements of cost – the estimate and risk allowance. This risk allowance it considers should be included in the budget to cover the potential financial impact of the client's retained risks as estimated in the risk analysis. Additionally it should not be based on an arbitrary percentage of the total project budget, but be costed out as accurately as possible. Also this allowance should be used exclusively to mitigate the impact of identified risks.

5.12 THE GREEN BOOK

The *Green Book* is published by HM Treasury, and its formal title is *Appraisal and Evaluation in Central Government* (HM Treasury 2003). It declares its purpose is to ensure that no policy, programme or project is adopted without first having the answer to the questions

“are there better ways to achieve this objective?” and “are there better uses for these resources?”. The *Green Book* aims to be a best practice guide and make the appraisal process throughout government more consistent and transparent. The book is directed at, as it declares: “anyone required to conduct a basic appraisal or evaluation of a policy, project or programme; and people seeking to expand their knowledge in this area”. It is subdivided into seven chapters and after an introduction it provides an overview of appraisal and evaluation, the need to establish the requirement for government intervention in a market, the setting of objectives, appraisal of options, the development and implementation of a solution and finally evaluation.

5.12.1 Optimism bias

What might be considered to be unique to the *Green Book* is the subject of “optimism bias”. Within Chapter 5, the authors address the subject of adjusting for bias and risks. The authors state that there is a demonstrated systematic tendency for project appraisers to be overly optimistic and that this is a worldwide phenomenon affecting both the private and public sectors. It is considered that optimism is not just confined to initial capital expenditure, but also benefits, time and operating costs. To address this tendency it is considered that appraisers should make explicit adjustments for this bias. This the book advises is accomplished by increasing estimates of the costs together with decreasing and delaying the receipt of estimated benefits. The authors state that these adjustments should be empirically based using data from past projects or similar projects elsewhere taking account of the unique characteristics in hand. Where past data is not available, a separate publication is referred to (Mott MacDonald 2002). Due to projects commonly being substantially different and there being a distinct shortage of information on completed projects, data to inform optimism bias is in short supply. Attempts to extract meaningful data from project records is commonly hampered by “project morphing” – the project you start with is not the project you finish with, changes in personnel and poor record keeping. Hence it is unfortunate that the proposed method of calculation is not included in the *Green Book* for ease of reference.

5.12.2 Annex 4

Within Annex 4, entitled “Risk and Uncertainty”, it provides guidance on risk management, transferring risk, optimism bias, Monte Carlo analysis, irreversibility and the cost of variability in outcomes. This Annex provides more information on the subject of optimism bias. Optimism bias it explains is “the demonstrated systematic tendency for appraisers to be over-optimistic about key project parameters”. The book calls for optimism bias to be accounted for explicitly in all appraisals and can arise in relation to: capital costs; works duration; operating costs and underdelivery of benefits. The authors consider that the two main causes of optimism bias in estimates of capital costs are:

- poor definition of the scope and objective of projects in the business case, due to poor identification of stakeholder requirements, resulting in the omission of costs during project costing; and
- poor management of projects during implementation, so that schedules are not adhered to and risks are not mitigated.

The authors suggest that appraisers should adjust for optimism bias in the estimates of capital costs in the following way:

- Estimate the capital costs of each option;
- Apply adjustments to these estimates, based on the best available empirical evidence relevant to the stage of the appraisal; and
- Subsequently reduce these adjustments according to the extent of confidence in the capital costs' estimates, the extent of management of generic risks and the extent of work undertaken to identify and mitigate project specific risks.

To minimise the level of optimism bias in appraisal, best practice guidance (Mott MacDonald 2002) suggests that the following actions should be taken:

- Project managers, suitably competent and experienced for the role, should be identified;
- Project sponsor roles should be clearly defined;
- Recognised project management structures should be in place;
- Performance management systems should be set up; and
- For large or complex projects:
 - Simpler alternatives should be developed wherever possible;
 - Consideration should be given to breaking down large, ambitious projects into smaller ones with more easily defined and achievable goals; and
 - Knowledge transfer processes should be set up, so that changes in individual personnel do not disrupt the smooth implementation of a project.

5.13 CIPFA INTERNAL CONTROL

CIPFA advise their publication, *Guidance on Internal Control and Risk Management in Principal Local Authorities and other Relevant Bodies to Support Compliance with the Accounts and Audit Regulations 2003*, was produced to compensate for the hitherto lack of guidance on the implementation of internal control (CIPFA 2003). The publication provides an explanation of *why* internal control is required, *when* is it required, *what* is internal control and *how* it should be implemented and *who* should it be implemented by (without specifically using these adverbs as headings).

The publication explains *why* internal control is required as a matter of regulatory compliance. Within its introduction it states "The purpose of this guidance is to outline the elements needed for the establishment, maintenance and review of a system of internal control and risk management in local authorities in the context of the requirements of the Audit Regulations 2003, to establish proper practices for the publication of a statement of internal control (SIC) and to provide a proforma statement on internal control." Specifically the guidance responds to Regulation 4 of the Accounts and Audit Regulations 2003, which requires from 1 April 2003: "The relevant body shall be responsible for ensuring that financial management of the body is adequate and effective and that the body has a sound system of internal control which facilitates the effective exercise of that body's functions and which includes arrangements for the management of risk." This statement explains the relationship between internal control and risk management, in that risk management is a subset of internal control.

The guidance explains *when* internal control is implemented by again referring to the Accounts and Audit Regulations 2003, which states: “The relevant body shall conduct a review at least once a year of the effectiveness of its system of internal control and shall include a statement on internal control, prepared in accordance with proper practices, with (a) any statement of accounts it is obliged to publish in accordance with Regulation 11, or (b) any income and expenditure account, statement of balances or record of receipts and payments it is obliged to publish in accordance with Regulation 12.” It is understood that this stipulation on frequency emanates from the recognition that an organisation’s external environment never stands still and is constantly evolving as described by the Turnbull Report.

In terms of the question “*what* is internal control?”, the guidance describes internal control as being a series of controls designed to ensure:

- the authority’s policies are put into practice;
- the organisation’s values are met;
- laws and regulations are complied with;
- required processes are adhered to;
- financial statements and other published information are accurate and reliable; and
- human, financial and other resources are managed effectively and efficiently.

The guidance explains that *how* to set up a system of internal control is explained in *Effective Internal Control – A Framework for Public Service Bodies*, published by CIPFA in 1994.

In terms of the *who*, the responsibility for establishing, maintaining and reviewing the system of internal control lies with each local authority. In practice each local authority is likely to take assurance from the work of internal audit. The Code of Practice for Internal Audit in Local Government in the United Kingdom (the Code) defines internal audit as: “an assurance function that primarily provides an independent and objective opinion to the organisation on the control environment, comprising risk management, control and governance by evaluating its effectiveness in achieving the organisation’s objectives. It objectively examines, evaluates and reports on the adequacy of the control environment as a contribution to the proper, economic, efficient and effective use of resources.” While internal audit looks after the system of internal control, it is common for aspects of risk management to be devolved to different parties:

- risk identification is delegated to a corporate risk management group;
- individual managers are assigned the responsibility of managing individual risks;
- members within the appropriate member committee establish procedures whereby they can attest that the local authority has “a sound system of internal control”; and
- head of internal audit has overall responsibility for the system of internal control (including risk management).

Additionally in terms of the responsibility for Standard 9 (“Reporting”) of the Code, the head of internal audit is required to include in the annual internal audit report to the local authority an opinion on the overall adequacy and effectiveness of the authority’s control environment, providing details of any weaknesses that should be considered in the preparation of the statement of internal control (SIC).

5.14 MANAGING RISKS TO IMPROVE PUBLIC SERVICES

The declared purpose of this report was to assess the progress which government departments had made since the previous survey results recorded in *Supporting Innovation: Managing Risk in Government Departments* (National Audit Office 2000b). It focuses in particular on the resilience of departments' risk management to prevent adverse impacts on service delivery or value for money. The report findings were based on a survey of the 20 main Whitehall departments, three departmental focus groups, comparisons with private sector organisations and five case studies of government organisations. The general conclusion was that while significant progress had been made it was considered that departments had further to go in demonstrating that they had made effective risk management a central part of their day-to-day general management processes that would deliver improved performance. Of interest here is that while this publication does not focus on tools and techniques it does describe through case study evidence how departments can secure the benefits of risk management in practice (and avoid it being seen as purely an administrative process). The report considers that good risk management has four key benefits: deliver better public services, improve efficiency, make more reliable decisions and support innovation. Extracts of the case studies, which illustrate benefits derived from risk management, are included in Box 5.6.

5.15 THE ORANGE BOOK (REVISED)

The revised *Orange Book* entitled *Management of Risk – Principles and Concepts*, has a shift in emphasis (HM Treasury 2004). As Mary Keegan (Managing Director, Government Financial Management Directorate) states in the foreword, with all government organisations now having basic risk management processes in place, the main risk management challenge no longer lies in the initial identification, analysis and management of risk, but rather in the ongoing review and improvement of risk management. This revised guidance aims to reflect this change. It now includes guidance on issues such as “horizon scanning” for the emergence of new risks or changes in existing risks affecting the organisation's risk profile. Scanning is thought to be dependent on maintaining a good network of communications with relevant contacts. A series of issues surrounding “horizon scanning” are described which are captured in Box 5.7.

The book also focuses on both internal processes for risk management and consideration of the organisation's risk management in relation to the wider environment in which it functions. It makes reference to the Treasury's “Risk Management Assessment Framework” which provides a means of assessing the maturity of an organisation's risk management processes. In lieu of the risk management cycle previously described, the book now uses a model developed from the Strategy Unit's report (Cabinet Office 2002), to describe the risk management process within its context. This context is described as being composed of an “extended enterprise” and a “risk environment”. The “extended enterprise” is described as being the source of additional risks emanating from, say, other organisations with which interdependencies exist, the context of being a “parent” to or a “child” of another organisation or third-party arrangements with, say, a contractor to whom risks have been deliberately transferred. In addition this revised addition offers a revised schedule of risk categories intended to help organisations check that they have considered the range of potential risks, which may arise.

Box 5.6 Case study evidence

| How risk management can deliver tangible benefits: | | |
|--|--|---|
| Department | Problem | Risk management solution |
| BENEFIT 1: Deliver better public services | | |
| • HM Customs and Excise | A series of high profile High Court trials in which prosecutions collapsed due to mistakes and omissions in procedure. | Customs and Excise created a new programme of professional standards training to reduce the risk of officers making costly mistakes. The aim is to maximise the likelihood of a conviction by ensuring that when intercepting smuggled goods Customs Officers follow precise legal rules and procedures. |
| • Prescription Pricing Authority | Pharmacists send prescriptions following dispensing to the Prescription Pricing Authority (PPA) monthly, which calculates and authorises payments. A postal dispute could cause financial hardship for the small pharmacy business whose cashflow is dependent on payments from the PPA. | A partial response to the PPA secured a contract with an alternative provider of collection and delivery services to help ensure that dispensers would receive prompt payments in the event of postal disruption. The PPA is also working towards e-prescribing, now included as part of the NHS National Programme for IT. |
| BENEFIT 2: Improve efficiency | | |
| • HM Customs and Excise | By 2000, one in five cigarettes smoked in the UK was smuggled, costing around £2.5 billion in lost tax revenue, creating serious law and order problems and undermining government health objectives. | The department identified the risks to achieving a reduction in illegally imported tobacco and invested £209 million over three years to tackle the problem. The department refined its risk assessments on the basis of new intelligence analysis, which enabled it to refocus resources to disrupt smuggling and reduce its profitability by directing its interventions to supply routes, activities and ports of entry where illegal importation was most likely. |

BENEFIT 3: Make more reliable decisions

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> • National Savings and Investments | <p>To address known weaknesses of its elderly IT systems, NS&I agreed that its partner Siemens Business Services (SBS) should transfer the Premium Bonds database with records representing an investment value of £24 billion to another IT system.</p> | <p>To mitigate the risk to its reputation and potential loss of sales if errors were made in customer data in the transfer, NS&I devoted two and a half years to implementing the migration and timed it for the Easter weekend 2004, when fewer people would be making Premium Bonds transactions.</p> |
|--|--|---|

BENEFIT 4: Support innovation

- | | | |
|--|--|--|
| <ul style="list-style-type: none"> • National Savings and Investments | <p>In 2004 NS&I launched a new type of savings account, the Easy Access Savings Account, which involved major changes to NSI's business, including creating a system for customers to access the new account through automated teller machines (ATMs).</p> | <p>Staff with experience of launching financial products in the private sector were aware of the risks of overstimulating demand and not being able to deliver the product to customers in a timely fashion. Good risk management enabled NS&I to achieve an effective product launch.</p> |
|--|--|--|

Box 5.7 Issues relating to horizon scanning

Extract from *Management of Risk – Principles and Concepts*:

- Periodically/Regulatory: horizon scanning must be continuous (in an organisation like the Civil Contingencies Secretariat (CCS) which continually searches for potential future disruptive challenges) or periodic (e.g. weekly or annually);
- Timescale: Policy makers could well be interested in developments over the next 25 years whilst horizon scanning that supports operational decision making may be restricted to a six month timeframe;
- Scope: Some organisations may be fairly insular in their risk identification processes if they perceive that the major element of risk arises from within the organisation; others may need to consider a much wider scope if they consider that they may face risks from a wider environment. Depending on the nature of the organisation's business this element of risk identification may range from almost exclusively internal activity to activity that depends on international networks of technical information;
- Opportunity threat: Some horizon scanning is concerned mainly with spotting potential problems, but it can equally be used to scan for opportunities ("positive risks") and many problems may be translatable into opportunities if spotted early enough;
- Rigour/technicality: Horizon scanning varies in the extent to which it is structured and supported by technology. Some organisations use sophisticated assessment schemes and information search technologies; other organisations rely almost entirely on informal networks of contacts and good judgement.

Table 5.1 Government publications and their contribution to the risk body of knowledge

-
- The Cabinet Office report *Successful IT: Modernising Government in Action* sought to improve the performance or success rate in government IT projects by learning from the past.
 - Common risks to IT projects
 - Tool – Summary Risk Profile (risk map)
 - Tool – Project Profile Model (scoring table for project evaluation)
 - *Supporting Innovation: Managing Risk in Government Departments*
 - Essential requirements for effective risk management
 - *The Orange Book* (HM Treasury)
 - Tools: commissioning a risk review, risk self-assessment and Control & Risk Self Assessment (CRSA)
 - Categories of risk
 - Four responses: Transfer, Tolerate, Treat and Terminate
 - Four controls: Detective, Directive, Preventive and Corrective
 - *Worth the Risk?* (Audit Commission)
 - The constituents of good risk management
 - *Corporate Governance in Local Government – A Keystone for Community Governance: The Framework* (CIPFA/SOLACE)
 - Outputs of a systematic strategy, framework and process for managing risk
 - Elements (or activities) of risk management and internal control
 - *Management of Risk: Guidance for Practitioners* [M.o.R]
 - Decision making within the management hierarchy of an organisation
 - Techniques to support risk management
 - *Risk Management Strategy* (DEFRA)
 - Consequence activities
 - Likelihood rating definitions
 - Impact category definitions
 - Measures for determining the currency of the RM process
 - *Risk: Improving Government's Capability to Handle Risk and Uncertainty* (Cabinet Office)
 - The government's role and responsibilities in handling risk
 - Poor past project performance
 - Improving capacity to handle risk, communicating risk to win trust and specific action.
 - *Risk and Value Management* (OGC)
 - Key messages about managing risk
 - Gateway reviews
 - Risk feedback
 - Risk allowance
 - *The Green Book* (HM Treasury)
 - Optimism bias
 - *Guidance on Internal Control and Risk Management in Principal Local Authorities and other Relevant Bodies to Support Compliance with the Accounts and Audit Regulations 2003*
 - The publication provides an explanation of why internal control is required, when is it required, what is internal control and how it should be implemented and who it should be implemented by (without specifically using these adverbs as headings)
 - *Managing Risks to Improve Public Services* (NAO)
 - Four key benefits: deliver better public services, improve efficiency, make more reliable decisions and support innovation
 - Benefits derived from risk management
 - *The Orange Book revised (Management of Risk – Principles and Concepts)* (HM Treasury)
 - Horizon scanning
 - Risk management assessment framework
 - The extended enterprise
-

5.16 SUMMARY

This chapter examined the parties within government with the responsibility for embedding risk management and internal controls within departments. Additionally a number of government sponsored risk management publications were examined in chronological order. Each publication enriches our understanding of the discipline of risk management, commonly through examination of a combination of the following: the process; difficulties of implementation; embedding risk management; and tools and techniques. Aspects of each publication have an application in business or they reinforce existing experience about what constitutes a workable approach. Table 5.1 records the publications together with subjects within the publications (listed as bullet points) which would be relevant to business.

5.17 REFERENCES

Audit Commission (2001) *Worth the Risk?*

CIPFA (2003) *Guidance on Internal Control and Risk Management in Principal Local Authorities and other Relevant Bodies to Support Compliance with the Accounts and Audit Regulations 2003*, published by CIPFA, The Chartered Institute of Public Finance and Accountancy, London.

CIPFA/SOLACE (2001) *Corporate Governance in Local Government – A Keystone for Community Governance: The Framework*, published by CIPFA, The Chartered Institute of Public Finance and Accountancy, London.

Cabinet Office (2000) *Successful IT: Modernising Government in Action*, May Cabinet Office, HM Government, London.

Cabinet Office (2002) *Risk Improving Government's Capability to Handle Risk and Uncertainty*, Strategy Unit, Cabinet Office, HM Government, London.

DEFRA (2002) *Risk Management Strategy*, Department for Environment, Food and Rural Affairs, London.

HM Treasury (2001) *Management of Risk, a Strategic Overview, (The Orange Book)*.

HM Treasury (2003) *Appraisal and Evaluation in Central Government*, HM Treasury, published by TSO (The Stationery Office), Norwich, UK, (the *Green Book*). First edition 1991, second edition 1997.

HM Treasury (2004) *Management of Risk – Principles and Concepts (The Orange Book)* revised.

Mott MacDonald (2002) *Review of Large Public Procurement in the UK*, Mott MacDonald, Croydon, Surrey.

National Audit Office (2000) *Supporting Innovation: Managing Risk in Government Departments*, report by the Comptroller and Auditor General, 17 August, The Stationery Office, London.

National Audit Office (2004) *Managing Risks to Improve Public Services*, October, The Stationery Office, London.

Office of Government Commerce (2002) *Management of Risk: Guidance for Practitioners*, The Stationery Office, London.

Office of Government Commerce (2003) *Risk and Value Management*, Procurement guide 04 of the Achieving Excellence in Construction series.

Public Accounts Committee (2001) *First Report Session 2001–2002, Managing Risk in Government Departments*, November, The Stationery Office, London.

Lord Phillips (2000) *The BSE Inquiry, Volume 1, Findings and Conclusions*, The Stationery Office, London.

Part II

The Appointment

This part presupposes that not all businesses will have the knowledge, experience or resources in-house to implement ERM and may wish to engage external support. This support being in the form of an independent impartial party, to assess the maturity of their existing practices, address particular stakeholders' concerns, introduce best practice or carry out specific risk management activities. This part of the book is devoted to the consultant appointment process. It is subdivided into four chapters, which cover an introduction to consultancy services, interview with the client, appointment and implementation. The purpose of these chapters is to aid consultants and in-house departments understand the communication process that has to be engaged in with sponsors of ERM to establish what is required, what should be offered and how implementation should be carried out. It will also enable procurers and sponsors of risk management services to structure their thinking about what they require, interfaces with other sectors of the business, benefits, the process to be followed and to some degree consultants' expectations.

From time to time businesses are faced with engaging in activities which are non-routine, expose the business to more risk than day-to-day business operations and in which the business has limited experience. Such activities might include an acquisition, the construction of a new building, product diversification, the purchase and installation of a new IT system, organisational change, or a combination of these activities. In such a situation, the business has to decide if it will undertake the risk management of these activities in-house, using its own resources, or engage an external specialist consultant. In addition it will need to decide what scale or extent of risk management activity is necessary. This will normally be decided by the board, a member of the board or the risk committee (if one exists), and any pressure brought to bear by the non-executive directors, to follow a particular solution. The option selected is commonly a function of whether in-house expertise exists, whether this expertise has the time available to undertake this additional activity or the importance of the assignment. It may also be based on the value attributed to the risk management activity, whether major stakeholders have expressed a preference that external help be sought, whether staff would be more responsive to a consultant, the commercial sensitivity of the activity or the cost if it was outsourced. However, regardless of which route is adopted, any risk management activity will have to follow a common pattern. This chapter briefly describes the common steps within a generic process.

6.1 CHANGE PROCESS FROM THE CLIENT PERSPECTIVE

6.1.1 Planning

All businesses at some stage engage in some form of organisational change to: realign themselves with the market, facilitate expansion, increase market share or create new markets. This may include for instance IT investment, product development, premises rationalisation, embarking on e-commerce, or an overseas investment. Any proposed major change that a business intends to carry out must be planned as a project in its own right. There must be a clear set of objectives, timeframe, budget, sponsor, project manager, brief, designated participants and desired outcomes. There must be an understanding of the complexity, degree of novelty and how the activity will impact existing and potential customers. There must be clear recognition of the significance of the programme to the success of the business and the speed with which the activities are to be completed. All change programmes entail risk. Hence there must also be an understanding of the risks and opportunities associated with the change. What are the ramifications if the change is implemented late? What are the implications if the change does not accomplish all of its objectives? What would the effect be if the cost of the change significantly exceeded expectations?

6.1.2 Timely information

A prime objective of risk management is to enable both improved and timely decisions to be made. While risk management informs initial investment decisions, it must be an ongoing process. Finding out at the end of a change programme that the change did not accomplish its objectives robs a board of its decision-making powers. It is denied the opportunity to abandon, delay or change the programme of activity. There must be regular reporting so that the progress of the implementation of the change is understood and conveyed to the board to facilitate choices. Deloitte Research, a part of Deloitte Services LLP, undertook a survey to analyse the causes of major shareholder value losses between 1994 and 2003 (Kambil *et al.* 2005). Kambil *et al.* found from their study that the absence of, or inadequate, risk management was also compounded by the lack of timely information. While early risk management can steer investment decisions in the right direction, risk analysis must be carried out during implementation, to inform boards of the ramifications of late delivery, partial delivery or programme failure. The study found that senior executives and boards of directors had been deprived of information on the causes, financial impact and possible resolution of the problems that had arisen. The authors found from their research that the lack of timely information reflected adversely on the senior executive team and their control of the organisation, and often led to their departure. The shock to investors, who suddenly learnt of previously undisclosed problems at a “late hour”, drove share prices down. Hence while risk assessments can assist boards with programme choice from among a series of alternatives, interim results on an ongoing change programme must be released on a regular cycle to permit both prompt decision making and reporting to shareholders. This need for ongoing risk management support places demands on risk management resources.

6.1.3 Risk management resource

Businesses embarking on a change programme must assess their risk management capabilities. If the expertise or the resource is not available in-house, and the choice is made to engage a risk management consultant, it is common for a selection process to be undertaken. This entails engaging in some or all of the following activities. The actual sequence of activities followed will be dictated by the size, complexity and value of the commission and the time available for a formal tender process.

- Understanding which department or cost centre will fund the consultant’s costs and who will be the designated sponsor.
- Describing the objectives of the activity.
- Preparing a description of the activity and how it interfaces with the day-to-day activities of the business.
- Deciding who will manage the appointment process and over what timeframe it will be concluded.
- Deciding on the method of inviting proposals.
- Drawing up a long list of consultants.
- Sending out letters to the long list, inviting expressions of interest.
- Preparing pre-selection criteria to assess the long list, to derive a short list.
- Shortlisting interview.
- Evaluating returns and interviews and preparing a short list to invite tenders from.
- Agreeing on the number of consultants to be invited to submit proposals.

- Preparing an exclusion notification – a letter advising those who will not be invited to tender.
- Agreeing on the information to be submitted as part of the technical and financial proposals, the quality/price ratio and the scoring matrix.
- Pre-selection interview (discussed in Chapter 7).
- Inviting technical and financial proposals from short listed firms.
- Agreeing on the interview process in terms of timing, purpose, structure, attendees and overall format.
- Agreeing on the individual or individuals who will make the selection.
- Appreciating who from the business will have to be involved in the assignment and assessing their availability.
- Determining who (within the business) the primary point of contact would be for the consultant if appointed.
- Deciding if a lump sum or day rates are required depending on the degree of certainty of the duration of the assignment.

6.2 SELECTION OF CONSULTANTS

6.2.1 Objectives

The objectives of a change programme must be clear and unambiguous. They must not be too wordy. They should be small in number so that they can be readily committed to memory. Being readily recalled and articulated radically improves communication and commitment. They must be aligned with both the goals of the business and the goals of other change programmes already commenced. They must be recorded and agreed upon by the sponsor and the implementers.

6.2.2 The brief

A primary activity in the selection and appointment of a consultant is the preparation of a description of the change activity, or the brief as it is sometimes referred. If the change is organisational restructuring, the brief must clearly set out the high-level drivers for the change (the objectives), any subobjectives and the goals to be accomplished (the success criteria). The brief will also contain the economic, market and historical context of the change, the required timeframe, cost, implementers, roles, responsibilities, current business activities and activities post-implementation, the section of the organisation affected, the geographical spread of the business premises affected and the internal business interfaces.

6.2.3 Describing activity interfaces

The most compelling argument for introducing risk management practices is to reduce the risk of a reduction in shareholder value. Deloitte Research, a part of Deloitte Services LLP, undertook a survey to analyse the causes of major shareholder value losses between 1994 and 2003 (Kambil *et al.* 2005). While the authors of the survey recognised that the past does not automatically predict the future, the study sought to better understand the factors underlying corporate value losses and to suggest better ways to reduce vulnerability and disarm the “value killers”. The authors say that to their surprise they found that major value losses were not always driven by a failure to respond adequately to a single category of risk failure – but often

due to the failure to respond to many different types of interdependent risks over a short period of time. That many major value losses had been the result of several types of risk interacting. They cite the following case as an example of risk interdependencies.

After a fourth profit warning in five quarters a major manufacturer saw its shares plunge by more than 25%. In total the firm lost more than half its market value over the course of one year. Traditionally a market leader, the manufacturer was initially slow to respond to the strategic risk posed by competitors aggressively introducing products with new features. But its effort to reduce costs through massive reorganisation left it vulnerable to further losses from inadequately managing operational risk. The firm consolidated more than 30 administrative centres into just three, which slowed order fulfilment and billing, and increased customer administration costs and accounts receivable, leading to further losses.

Hence any briefing to consultants should as far as possible describe how the activity (for which the risk assessment is being undertaken) interfaces with other business activities. This may include subsidiaries, other premises, suppliers, partners and so on. The briefing should also refer when appropriate to how the activity relates to any forthcoming deliveries to major customers.

6.2.4 Appointment process management

A manager needs to be allocated the responsibility of managing the appointment process. The individual selected needs to have sufficient time to dedicate to the process to be sufficiently familiar with the objectives of the assignment and the skills required to implement the assignment. This individual will be responsible for preparing a programme of the selection and appointment process. The discipline of preparing a programme forces consideration of the activities to be undertaken, their likely duration, the sequence in which they will be implemented, who will be involved in each activity and the overall duration. It will inform the implementers of the change programme how quickly a consultant can be brought on board.

6.2.5 The long listing process

The production of the long list is the first step towards establishing a viable tender list, which will ensure genuine competition among capable suppliers. The long list can be compiled from a list of consultants who have supplied services to the business before, and recommendations from non-executive and executive directors together with recommendations from professional bodies. It may be useful at this stage to ask consultancies that are not known to the business to provide brochures and possibly references, as well as examining their websites. When the long list is compiled, a preliminary enquiry should be sent to each firm on the list to ask them to confirm without obligation that they are interested, that they have the resources and that they will submit a tender if invited to do so. It is normal to request that replies are made by e-mail or in writing by a given date. The preliminary enquiry usually covers the following points:

- Title of the commission.
- Intended date of the invitation to tender.
- Intended date of the contract award.
- Commencement date of the commission.
- Duration of the commission.
- A request to confirm in writing interest in being included in the tender list.

- A request for information supporting the enquiry recipient's inclusion in the tender list/expression of interest, against which consultants will be assessed.
- Advice that neither the enquiry nor their positive response to it would in any way guarantee that they would be included on a tender list or that the commission would proceed at all.

6.2.6 Short list selection criteria

The supporting information that consultants are requested to accompany the expression of interest must be sufficient to differentiate them and provide sufficient information against which to judge their competency. Hence in order to form a final short list, it is necessary to establish the criteria and associated weighting, to evaluate those consultancies on the long list. The greater the extent to which the brief has been defined, the more focused and specific the pre-selection criteria can be.

The key criteria for pre-selection are as follows:

- Experience of similar commissions in terms of
 - change programme type contemplated;
 - business context;
 - approach (method of working and management);
 - technical capability;
 - completion to programme;
 - professional resources and support facilities available.
- Qualifications and experience of staff.
- Financial standing.
- Adoption of a quality management system.
- Location of consultant's offices.
- Corporate membership of professional organisations.
- IT policy.
- Knowledge of risk management software.
- Outline suggestions for the approach to the commission in terms of identification, assessment and management.

6.2.7 Request for a short listing interview

The short listing interview can be held at the consultant's offices or the client's offices. If the consultant and client have worked together recently, then an interview may be unnecessary. If the two parties have worked together before but not recently, the interview could be held in the client's office. Where an interview is to be held, then a letter can be issued to those that have submitted favourable responses stating the details of the interview. This would include the date, time, location, duration, format, number of attendees, topics for discussion and the aspects of the office that the client would like to see.

6.2.8 Compilation of short list

When all pre-selection information has been gathered and evaluated, the short list can be produced. The number of tenderers selected for the short list will depend on the size and complexity of the commission. Those that are not short listed should be advised in writing.

The short listing should be carried out by those identified at the outset of the selection process within the timeframe established in the selection process programme. The number of consultancies selected for the short list will depend on the nature of the commission, but it is usually recommended that three or four firms are invited to tender. It is thought that three is the absolute minimum just in case a firm declines or drops out part way through the tendering process. Other than in very unusual circumstances, such as where tendering costs may be very high, consultants are not directly reimbursed for the costs they incur in preparing tenders. This is an overhead for each consultancy. Hence they have to build their tendering costs into their tenders. If clients regularly have tender lists of say 10, then consultants would have to increase the fees they charge to cover a larger number of unsuccessful tenders. It is therefore in clients' interests to keep tender lists low (below 10) but sufficiently high (say 4), to obtain competition and value for money.

6.2.9 Prepare an exclusion notification

Those that have not been short listed should be advised in writing. A standard letter can be prepared which can be tailored to suit specific circumstances. It may contain information similar to that listed below.

- Title of the commission.
- The commission reference, if one exists.
- The date of their letter.
- The date of an interview, if attended.
- Notification that post careful consideration, the consultancy will not be invited to tender.
- Notification that the decision to exclude them from the tender list does not affect their prospects of being invited to tender for suitable future work (provided the submission was not so poor that any future involvement would be out of the question).
- An offer to advise them why they had been unsuccessful.

6.2.10 Prepare tender documents

The tender invitation will commonly require a technical submission and a price and instructions may be given for them to be submitted together or separately. The technical submission typically calls for a methodology – how the assignment will be undertaken. The invitation will provide instructions on how the price/tender is to be broken down, together with advice on the quality/price mechanism. This mechanism advises tenderers the weighting that will be applied to the quality of the submission and the price when assessing the tenders. Indicative quality/price ratios are 60/40 and 70/30. These ratios assume that experience, technical competence, management skill and methodologies will take on far more significance than price. Advising tenderers of the quality/price mechanism in advance provides a sponsor with tenders that are more aligned to his/her priorities. The documents will describe the business activity, the objectives of the assignment, the consultant duties, the timetable for the tender process, including the duration of the assignment and any other pertinent information. At the time of preparing the tender documents, the evaluation criteria should be prepared. It is common for a label (or labels) to be prepared and issued to tenderers for the tender returns, to enable tenders to be opened simultaneously. In addition these documents will be accompanied by an

Agreement, which will describe the terms of the appointment. The content of a typical Agreement is described below.

6.2.11 Agreement to be issued with the tender invitation

The content of any Agreement needs to be adjusted to suit the circumstances of the commission and requires careful deliberation. The Agreement terms must reflect the common events that may occur during the life of a commission. Examples of the subjects to be addressed are included below.

- Definition of terms
- Duty of care
- Consultants' duties
- Changes to consultants' duties
- Payment
- Subcontracting
- Personnel
- Copyright and publication
- Assignment
- Suspension of services
- Insurance
- Health and safety
- Termination
- Intellectual property
- Additional services
- Confidentiality
- Publicity
- Conflict of interest

6.2.12 Tender process

Ensure sufficient time is allowed for both the tenderers to prepare their returns and for the tender review process. Make clear the specific date, time and location for the return of the tenders. Prepare a tender return summary sheet as part of the audit trail and for future reference, if the need arises again to recruit a risk consultant. Issue the tender invitations on the programmed date. Deal with tenderer's queries promptly during the tender period, and advise all other tenderers of both the questions and the answers. Record the tenders received, not received, opening time and the prices received. Ensure the tender reviewers are notified of the return date, the assessment criteria and their responsibilities. Select the preferred tenderer.

6.2.13 Award

Resolve any outstanding Agreement issues with the preferred tenderer. Notify the successful tenderer of the award of the commission, reconfirming the start date, the point of contact and the time and place of the "kick-off" meeting. Notify the internal assignment participants and the accounts department and also, where appropriate, the IT and security departments.

6.2.14 Notification to unsuccessful tenderers

The unsuccessful tenderers should be notified promptly after the successful tenderer has been informed. This may be accomplished by a simple single page letter containing information similar to that included below.

- Title of the commission.
- The commission reference, if one exists.
- The date of the tenderer's submission.
- Notification that, post careful consideration, the consultancy has been unsuccessful.
- An expression of gratitude for tendering.
- An offer to advise why they had been unsuccessful.

6.3 SUMMARY

This chapter described in summary a generic process for the appointment of consultants for implementing a risk management assignment. It described the selection process from long listing through to short listing, creation of assessment criteria, determining the contents of the Agreement and the award process. The assignment's results are only ever likely to be as good as the original briefing and objectives-setting the consultant was provided with at the outset of the assignment.

6.4 REFERENCE

Kambil, A., Layton, M., and Funston, R. (2005) "Disarming the Value Killers", *Strategic Risk*, Issue 27, published by Newsquest Specialist Media Ltd, London.

Interview with the Client

The previous chapter provided an introduction to the process of the appointment of consultants and the common steps involved. This chapter examines the interview between the consultant and the client prior to the preparation of a proposal, which is described in Chapter 8. This initial meeting may take place at the behest of the sponsor as a result of his/her need to address a specific issue, as part of a tender process (similar to that described in Chapter 6) or at the request of a consultant seeking to sell a particular service. It will be instrumental in the development of the relationship between the client and the consultant and, where the client has a need, establishing exactly what that need is. The purpose of this chapter is for both the client procuring services, to inform information sharing, and the consultant, in the questions that should be raised and the information that should be collected. It is a communication process where both parties must fully engage if a satisfactory outcome is to be achieved from both perspectives.

7.1 FIRST IMPRESSIONS/CONTACT

The first meeting between a client and a consultant will be critical to whether any future contact is made. During the first meeting between the two parties, a series of important issues are decided, such as:

- the interpersonal nature of the relationship and whether the client could work constructively with the consultant;
- whether the consultant organisation is considered to have appropriate experience and expertise;
- whether the consultant(s) who will be assigned to the task have sufficient experience;
- whether the consultant organisation has a good reputation for delivery;
- whether there is mutual respect for the professionalism of both parties;
- whether the consultant wants to take on the assignment;
- whether the client wants to employ the consultant;
- whether the proposed project will add value for the business; and
- what levels of risk both parties are exposed to by entering into a “contract”.

It is imperative for the consultant to apply sufficient time and energy to understanding the client representative as well as the problem. It is important to establish a solid relationship. The client/consultant relationship is the foundation stone that will support any future assignment. Successful consulting is driven by the extent to which the consultant can get close to the client to arrive at a position where he/she becomes more of a confidant or trusted adviser than purely a supplier of services. How far a consultant can build a sense of rapport with a client before the consulting process begins will affect the degree of success of the outcome of the assignment.

Rapport is a multi-headed beast that needs to be tamed. The key components of rapport are:

Rectitude: providing a supportive behaviour underpinned by company core values.

Approach: a receptiveness to new paradigms of working.

Problem: from the very beginning, seeking to view the problem as the client sees it, not as you, the consultant, see it.

People: professional, experienced, personable consultants who achieve success through goodwill and a collective will to succeed.

Outcome: establishing from the outset, by the use of questions, the client's wished-for outcomes.

Resolve: a determination to focus on the dominant issues and accomplish the assignment goals.

Trust: the development of trust which is the cement that builds and sustains any client relationship.

7.2 CLIENT FOCUS

In any dialogue between the consultant and the client it will be important for clear communication, and establishing what is of vital importance to the client:

- Statutory compliance (employment law, health and safety legislation etc.)
- Regulatory compliance (Sarbanes-Oxley Act, FAD etc.)
- Maintaining shareholder value
- Corporate governance/internal controls (Combined Code 2003)
- Financial stability
- Market share
- Information security
- Business continuity
- Project risk management (project risk is related to corporate risk since the profile of the latter will change if management invests in risky projects)
- Satisfying reporting requirements

7.3 UNIQUE SELLING POINT

The term “unique selling point” commonly abbreviated to USP means a unique selling proposition, a sales proposition that the competition cannot or does not (currently) offer. It is one of the basics of effective marketing for consultancies that has stood the test of time. The consultant will be looking to differentiate themselves from the competitors in what is commonly a crowded market place. The client will be wishing to understand a consultant's general experience and competency, their standing (financial, insurance, reputation), whether they can adequately complete the assignment planned and whether they can offer something above the norm. An example of a table constructed by a consultancy to describe its USP is included as Table 7.1. They have gone through the common steps of identifying the features of their firm (step 1), converted the features into benefits that customers will value (step 2), ranking the benefits in order of importance on a scale of 1–10, where 10 is very important and 1 is insignificant (step 3) and identifying the benefits as being “standard”, “uncommon” or “different”,

Table 7.1 Analysis of unique selling point(s)

| Feature | Benefit | Ranking (1–10) | Standard, Uncommon (Few), or Different |
|---|--|-------------------|---|
| Consultancy firm | | | |
| General knowledge of the industry or sector (such as government departments) – commissions already completed for businesses in the same market | The consultancy has specific experience of the customers' industry | 9 | F |
| Reputation in the market place | The consultancy is well respected | 9 | D |
| Previous professional indemnity claims | Customers will take comfort that no PI claims have been made by other clients | 8 | S |
| Unresolved disputes | Customers can be confident that due to an absence of disputes, consultancy staff will not be distracted by participation in dispute resolution | 8 | S |
| Year of establishment | The consultancy has been in existence longer than 5 years, the period thought to be a minimum for stability | 7 | S |
| Financial standing | The consultancy shows a consistent growth | 7 | S |
| Number of staff | Customers can be confident that the assignment will be adequately resourced | 7 | S |
| Staff retention | Customers can be confident that there will be minimal changes in personnel | 7 | S |
| Number of years of corporate experience | The consultancy has been in existence longer than 25 years during which time it has developed a wealth of experience | 6 | S |
| Current workload | Does not prohibit taking on more assignments | 6 | S |
| Location of offices | The consultancy has offices across the UK | 6 | S |
| Price | Customers will not see a significant difference in price | 5 | S |
| Consultant | | | |
| Experience: | Customers can see that the individual's experience is highly beneficial to the outcome of assignments | 10 | D |
| <ul style="list-style-type: none"> • Size (and or complexity) of commissions completed • Breadth of experience across different industries • Number of years | | | |

(Continued)

Table 7.1 Analysis of unique selling point(s) (*Continued*)

| Feature | Benefit | Ranking (1–10) | Standard, Uncommon (Few), or Different |
|---|--|-------------------|---|
| General knowledge of the industry or sector (such as government departments) | Staff have specific experience of the customer’s industry | 9 | F |
| Knowledge of the drivers of business success and failure in the industry or sector within which the organisation operates | The staff have knowledge of the reasons behind failure and success | 9 | F |
| Knowledge of the regulatory framework within which the organisation operates | The consultancy has knowledge of the regulatory framework | 9 | S |
| Approach to assignments | Customers can see that the approach is highly beneficial to the outcome of assignments | 9 | F |
| Research into best practice | The consultancy is continually looking at new publications, software and news reports | 8 | F |
| Qualifications | Staff are very highly qualified | 7 | F |
| Ability to apply appropriate industry norm modelling tools | Staff are experienced in the use of the common modelling tools | 7 | S |
| Extent of published works | Staff have published a number of papers and articles | 5 | F |

where “standard” represents commonly offered features by competitors in the market place, “uncommon” means just that (few competitors offer this feature) and “different” means unique. While many of the features have been marked as standard, their absence would preclude the consultancy from competing. Also more than one feature can be awarded a 10, in terms of being very important.

7.4 PAST EXPERIENCES

To help establish what would be an acceptable approach to the assignment and to avoid repeating the actions of previously appointed consultants which were not well received, during the interview, consultants need to include in the conversation the following type of questions, without making it an all-out inquisition.

- What is the client’s previous experience of using consultants/have they used consultants before?
- What good results came from the experience?
- Were there any problems?
- What if anything would they seek to do differently this time?
- Do they have any fears or concerns about having consultants in the company now?
- Were there any communication difficulties?

7.5 CLIENT INTERVIEW

The meeting between the client and the sponsor will afford the consultant to ask a series of questions and gather important information. The seven Ss listed below (based on Cope's 7 Cs of Consulting (Cope 2003)) are a series of questions aimed at understanding more about the client organisation, the assignment and the client representative.

7.5.1 Sponsor

- What is the reason for seeking external support?
- Why is the assignment thought to be necessary?
- What are the implications of doing nothing?
- Who is the ultimate sponsor (financier) and what is their level of "buy-in" to the proposed assignment?
- Which sponsor representatives would be involved and where are they located?
- How will things be different or better once the assignment is complete?
- As the consultant, what concerns do you have about the assignment?
- How will you know if the assignment has been successful?

7.5.2 Situation

- Is there an existing risk management process?
- What is the organisational structure and the relationship between the audit committee, internal audit, the board and the risk management committee?
- What are the roles and duties of the departments/committee involved in risk management?
- What are the principal gaps in between these functions?
- Are the business objectives clear?
- What is (are) the group subsidy relationship(s)?
- What changes are currently taking place in the business environment?
- What, if any, changes are currently in progress in the organisation?
- What major changes have taken place in the business over the last 12 months?
- Are there any concerns about factors that might impact the assignment?
- What concerns would any participants in the assignment have?
- Are there any side effects that could arise from undertaking the assignment?
- Who can stop the assignment from being successful?
- What are the unspoken or shadow issues that might cause the assignment to fail?

7.5.3 Scheme/plan of action

- What constraints are there on any proposed methods of working?
- What are the criteria for a successful solution?
- What is the budget and timescale?
- What have you commenced already?
- What will be the availability of non-executive directors?
- What will the availability of the functional heads be?

7.5.4 Solution implementation

- Who will be involved in the assignment?
- What will their response be?
- What methods will be acceptable to implement the solution?
- Is there a standard engagement/deployment process that will have to be followed?
- Are there any aspects of the assignment that will be managed by a third party?
- Where is the power to effect change held?
- Have those people who will not resist and those who will be the key influencers been identified?

7.5.5 Success, measurement of

- How important is it for measurement to take place?
- Are you prepared to pay for the measurement to take place?
- Will you use qualitative or quantitative measures?
- How will you measure the business's buy-in to the change?
- Who will understand the measurement?
- What measures have you used in the past?
- How will you measure the assignment's performance?
- For how long will measurement continue?

7.5.6 Secure/continue

- How long do you want the change to last?
- Have you tried this before, did it last and if not why?
- What can we do to help ensure that the change will last?
- Are you prepared to invest in things that will make it last?
- Do you have the resources in place to support any change?
- Are responsibilities defined to maintain the change once it is complete?
- Is there anyone who will try to eradicate the change once it is complete?

7.5.7 Stop/close

- What does "good" look like?
- Once the change is complete, what differential value will we have added?
- What can be learnt from the assignment?
- How can this learning be used elsewhere?
- What can we do to ensure that you are not dependent on us once the change is complete?
- What would we have to do for you to recommend us to a colleague?
- What else might we be able to help you with?

7.6 ASSIGNMENT METHODOLOGY

The consultant will be required to spell out their methodology for the assignment. In simple terms the methodology is the collective term for the activities that will be undertaken, the sequence that they will be carried out in and the interdependencies. This might reflect

the following path depending on the requirements of the assignment: desktop study, review of methodology and background to the assignment with the sponsor, interviews and data collection, report writing, presentation of findings and finalisation of report.

7.7 CHANGE MANAGEMENT

For most businesses to survive and prosper they cannot stand still but have to change to reflect the evolving changes in the market place. As Stewart (1982) correctly summarises, the degree of change that businesses have to endure can be at opposite ends of the spectrum. For instance the top manager in a whisky distilling company, where the major change for several years may be a redesign of the label, will usually lead a more restful life than the top manager in a technically innovating industry like electronics, or one subject to fashion changes such as the clothing industry. How managers react to change will have an important impact on a business's future. The tempo of change has speeded up and hence the demands on managers to plan for and adjust to change are greater. The challenge is recognising the changes and understanding if they are a threat or an opportunity and how they should be responded to. Risk management is a tool for coping with change. But it cannot be a once only activity.

7.8 SUSTAINABLE CHANGE

To be effective, the changes that are implemented have to endure. Where organisations need external support to identify and implement the necessary changes (to maintain or improve business performance) effective consultancy support must deliver "value through sustainable change" (Cope 2003). The three factors that Cope describes as having to be present and managed to accomplish this goal are as follows:

- *Change*: A change must always take place. If the client or consumers do not think, feel or behave any differently at the end of the engagement, then what is the value? It is imperative that the consultant and client are both clear as to the change that is required.
- *Value*: There must be explicit value realisation. Only by understanding and taking responsibility for the change and the value derived from the change can the consultant and the client develop their capacity to repeat the activity and so enhance performance further at a later date.
- *Sustainability*: There is little point in making a change that has value, if it does not stick. This is at the root problem with so many change programmes. The consultant and client have a great time, make amazing leaps in performance, celebrate their success and then move on only to find that little value remains three to six months later.

Cope goes onto say "by looking at the change engagement as a battle of reinforcing and representative forces it becomes easier to map and measure what factors will enable the change to live beyond a short-term fix and deliver value through sustainable change". The primary determinant that drives any successful outcome will be the balance between the repressive forces that cause the client and business to revert to the old way of operating and the positive forces that help them hold onto the gains. The key parties within these opposing forces are likely to be members of the sponsor group, employees or members of the end-user group, as illustrated in Figure 7.1. While every assignment will have its own unique characteristics, it is recognised that there are a number of repressive forces that occur time and time again which

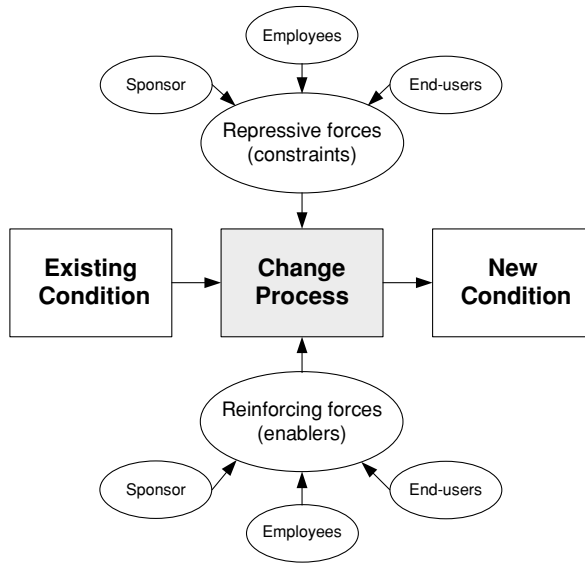


Figure 7.1 Influences on a change process

either threaten or cause the derailment of an assignment to deliver sustainable value:

- The client does not fully appreciate the current position and is unwilling to make the changes identified as necessary.
- Failure to understand the root causes behind the current position.
- Those affected by the change are not helped to work through the pain of letting go of the former methods of working.
- There is no accurate measurement and confirmation that the change has delivered the desired results.
- When the assignment is over, and the pressure of work returns, staff revert to the methods of working that they remember, understand and are comfortable with.

7.9 SUMMARY

The focus of this chapter has been on the first meeting between the client and the consultant who may be engaged to provide risk management support. It has examined the importance of this first meeting during which those very first impressions are formed and both parties decide whether they wish to develop the working relationship. It is important for any consultant to establish what a client's specific focus is, what is important to them and how much it means to their business. The consultant has to understand what their unique selling point is and the client needs to understand a consultant's core competencies and what they can offer over and above their competitors. As part of the interview, the consultant needs to blend into the conversation without making it too intrusive, questions about the client's past experiences of the use of consultants, to avoid repeating those actions, which would not be well received. The client interview, it is suggested, should follow a pre-planned sequence covering the subjects addressed under the headings collectively called the 7 Ss. A lot of reference has been made to change, as

risk management involves undertaking new processes and activities and approaching problems in a more systematic way. At this stage of dialogue with the client, the consultant would need to consider the methodology that would likely to be adopted and there are a series of steps that are commonly selected. Any assignment on its own (or when it forms part of a programme) forms a change process. For the assignment to contribute value to the organisation on whose behalf it is being conducted, it must contribute sustainable change.

7.10 REFERENCES

- Cope, M. (2003) *The Seven Cs of Consulting, the Definitive Guide to the Consulting Process*, Pearson Education Limited, UK, p. 2.
- Stewart, R. (1982) *The Reality of Management*, Pan Books Limited, London, England, 11th printing, revised edition. First published in 1967.

The previous chapter provided an introduction to the process of the appointment of consultants and in particular the initial meeting between the client and the consultant. This chapter examines the preparation of a proposal for enterprise risk management services and is for the benefit of consultants working within the discipline of risk management. It is largely based on an article entitled “Risky Business” prepared by the author for the magazine *Project*, published by the Association for Project Managers (APM) (Chapman 2003). Chapter 9 looks at the steps involved in implementation of assignments.

8.1 INTRODUCTION

Commissions are the lifeblood of any consultancy. Proposals are a vital ingredient in the securing of new commissions. The degree of success of a consultancy will therefore hinge in part on the quality of its proposals. (Winning commissions is obviously essential for survival but equally they have to be well executed. Poorly executed commissions will not secure repeat business or, worse still, will damage any hard earned reputation.) A proposal, then, will need to satisfactorily address all those issues a client has specifically requested responses to, build a persuasive argument, be readily understood and clearly articulate the benefits that will be derived from the assignment.

8.2 PROPOSAL PREPARATION

8.2.1 Planning

Prior to embarking on the written proposal it is prudent to plan the preparation of the proposal as if it were a project in its own right. This entails obtaining answers to basic questions such as who, what, when and how:

- who is going to write the proposal – will it be a single individual, will marketing be involved in providing information on previous experience, is support required for the preparation of diagrams/charts/organograms, is background research required, are CVs required to be updated?
- what will the subject matter be, or was the information gathered during the interview with the client so complete and precise there is no need for follow-up questions?
- when does the proposal have to be submitted – how many copies of the proposal are required, is the proposal to be bound or is it to be sent electronically be e-mail; if by e-mail, should the proposal exclude photographs to cut the file size down?
- how is the proposal to be prepared – what software is required and how will it be accessed – and if the proposal is to be restricted to a limited number of pages, what subjects will receive a more comprehensive treatment?

8.2.2 Preliminary review

One of the main sections of the proposal will be how the consultant proposes to carry out the assignment. This entails working back from the deliverables and understanding the incremental steps that will have to be undertaken. It is often helpful to prepare a task list recording the assignment tasks in the order in which they would be completed. Keep the list to one page if possible. The task list is essential to determine the resources required, the time required to complete the assignment, any software that will have to be purchased (either by the consultant or by the client), travel and accommodation requirements and the need for a partner, if all of the work cannot be undertaken in-house.

Proposals often fall into the trap of presenting their expertise in the form of a “recipe” which tells the client in considerable detail how to turn the assignment into a do-it-yourself job. Or worse, where the client is completely without principle, the detailed and comprehensive proposal finds its way into the hands of a competitor who is either cheaper or has a long-standing relationship with the client.

8.3 PROPOSAL WRITING

8.3.1 Task management

This technique treats the proposal as if it were a project in its own right to guide the tasks to be carried out, the resources required to complete the activities, the sequence in which the activities will be carried out and the outputs of each task.

8.3.2 Copying text

Consultancies have experience of writing proposals and commonly have a store of previously completed proposal documents. As writing proposals can be very time-consuming combined with the fact that proposals normally have several similar elements, it is common practice for some material to be copied and pasted from previous proposals. However, there is a danger in this practice, as the reused text may have been evaluated as poor by previous recipients, be time-elapsed or contain erroneous information. If the text is poorly edited, reference to other clients, projects or locations may be left in, giving the impression the proposal was produced in haste, was not considered important or the author’s organisation is incapable of producing carefully crafted documents.

8.3.3 Master copy

For large proposals and particularly where there are a number of contributors it may be appropriate to maintain a hard copy in a hardback folder subdivided with numbered dividers. This way contributors can see how their element fits within the whole document to avoid repetition and the use of inconsistent language or terms. Browsing can highlight terminology, readability, presentation and sequencing issues. Regular reviews will provide a good indication of progress. Independent assessment will identify errors and omissions.

8.3.4 Peer review

Ensure the proposal is reviewed by peers. The proposal should be read by colleagues experienced in preparing proposals with the view to them offering constructive criticism regarding how it could be improved. If you have concerns about any aspect of the proposal, draw these to the attention of the reviewer to ensure that they focus on it and address your concerns. Adequate time should be allowed for the review. The reviewer should be primed in advance that the document is coming, its likely length and complexity and the timeframe within which they will have to operate. Ensure that the final proposal is proof-read and a check is carried out that the language is clear and lucid.

8.4 APPROACH

State the activities that will be undertaken:

- What we propose to do.
- The order in which things will be done.

Develop a benefit statement for each activity:

- Describe how each main activity represents a benefit to the client.
- Structure the list of benefits logically so that it is clear how each activity contributes to the achievement of the desired outcome.
- Avoid indicating through unnecessary justification of a benefit, how it will be achieved.

8.5 PROPOSAL

The successful implementation of enterprise risk management requires the preparation of a proposal sometimes referred to as a Terms of Reference (ToR). Regrettably, due to a host of reasons they are either not prepared, lack clarity, are incomplete, not understood, not read in full by the recipients or not disseminated.

A ToR is the key document used to capture the problem definition. It is a critical communication tool and vital to the success of any risk management (RM) exercise. The ToR incorporates and expands on the technique known as the “Six Ws and H” and raises the questions of who, where, what, which, why, how and when. See Figure 8.1.

8.5.1 Identify the parties, the *who*

The first section of the ToR should identify the *who*: who within the client organisation has initiated and requires the RM process to be undertaken, who is funding the study, who within the client organisation will provide the necessary support to the process, who will participate in the study and who will facilitate it?

- It should be made explicit who has initiated the study and their contact details should be recorded.
- It should be made clear who is funding the study providing their contact details.
- The responsibilities of the client should be stated together with the individual(s) who will undertake the tasks listed. The Office of Government Commerce, in its publication *Management*

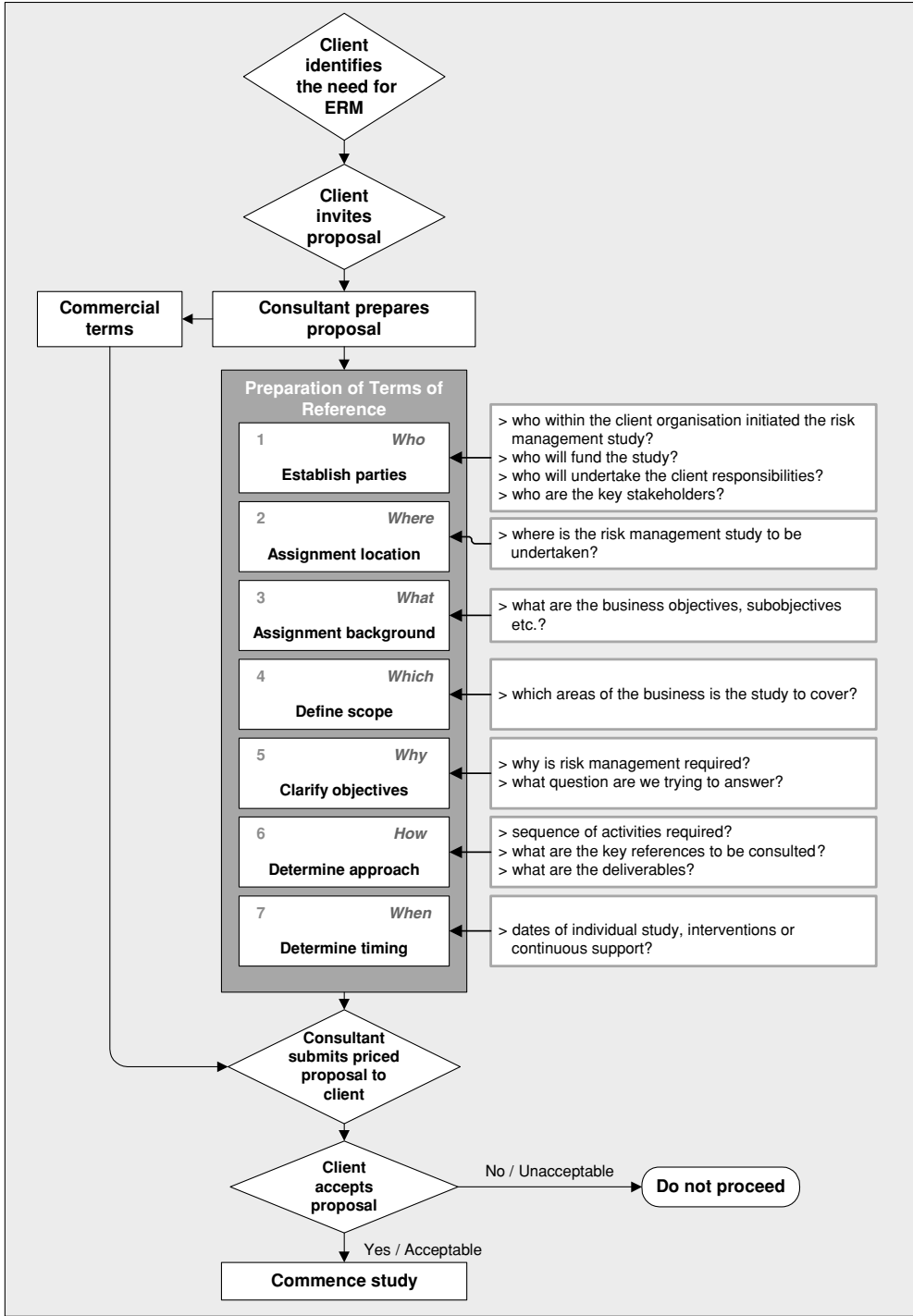


Figure 8.1 Preparation of a proposal

of Risk: Guidance for Practitioners, provides very good guidance on client responsibilities. It is essential that the client advises the participants in advance of the study, of its purpose, the timing, attendance required, the data that will be collected, the location of meeting rooms booked, the funding of any travel and subsistence, the facilitator(s) and the study outputs. The participants should not be surprised to be contacted by the facilitator! Participation should not be discretionary!

- The key stakeholders should be identified – commonly the contract parties and those who may influence the project. For consortia projects the stakeholder list may be extensive. Key stakeholders' aims should have been identified, discussed, aligned and incorporated into the project objectives prior to the commencement of the RM study.
- The interviewees should be listed – commonly the project team members together with representatives of the key stakeholders.
- The RM study facilitator(s) should be noted. This is the individual (or individuals) who will structure the process, facilitate data gathering, provide modelling, provide guidance on implementation and provide data for decision making.

8.5.2 Identify the location, the *where*

The next section of the ToR should identify the *where*: where is the RM process to be undertaken? The where can be significant on a number of fronts. If the analyst has to be co-located with the project team which is overseas, then the travel, accommodation and subsistence costs have to be factored into the cost of the risk study. If the interviewees are geographically dispersed and face-to-face interviews are considered essential, again similar costs will have to be factored into the RM study costs. If a consortium is undertaking the project, will two project offices have to be visited? What reliance can be placed on conference calls and is video conferencing available? In addition ethical considerations have to be taken into account such as data protection and storage, confidentiality and safety of the participants.

8.5.3 Understand the project background, the *what*

The following section of the ToR relates to the *what*: what are the project details? Understanding the project background means establishing as a minimum the project objectives, project catalysts, project stages and any key milestones, the key stakeholders and the organisational relationships – the contract parties. Unless the project objectives are established how would it be possible to establish the threats and opportunities?

8.5.4 Define the scope, the *which*

The next section of the ToR should identify the *which*: which part of the project is the RM process to address? The RM scope must be established, for instance whether it relates to just the business case, just the feasibility options or all of the decision gates. The which will affect the cost of the study, the duration, the resources required and the extent of the information to be reviewed. Prior to finalising the which, the benefit to the client must be assessed and a view taken as to what external support is required and what elements can be undertaken in-house.

8.5.5 Clarify the objectives, the *why*

The next section of the ToR should identify the *why*: why should the RM study be undertaken? What question are we trying to answer? What is the problem? Problem definition is the most important step of the ToR. Problem definition should clarify the problem being examined for all those involved (commonly referred to as the stakeholders or actors) and be worded in such a way as to give insight into the problem. Two important concepts used in problem definition are gap and problem owner. A problem can be seen as a gap between what we have and what we want (or where we are and where we want to be). The problem owner may be the project sponsor or the owner of a specific risk.

8.5.6 Determine the approach, the *how*

The following section of the ToR should describe the approach or the *how*: how/in what way should the ERM assignment be undertaken? A corollary to understanding why an ERM assignment should be undertaken is that there is no single best way to undertake all risk studies – the need to vary the approach will be driven by why it needs to be undertaken. A basic axiom of those who undertake successful model construction and ERM for decision-making purposes is that the approach (the *how*) adopted must suit the specific needs of the business decision or project under examination. This means responding to the question to be answered at the same time as understanding the constraints of the assignment. Constraints may include the financial constraints of the client, the timing of the board meeting to which the analysis has to be supplied or the availability of participants.

Planning for the ERM process begins with understanding the data to be analysed and selecting an appropriate model. A “model” in this context is the conscious simplification of a real situation we use to carry out analysis. Modelling involves a transformational process where outcomes are explained by a range of inputs and their associated assumptions. Most models of interest have a mathematical form and those commonly of interest to ERM have some element of uncertainty, require an understanding of probability and are referred to as probabilistic or stochastic. Of particular interest is their graphical representation, which will be a key tool in communicating the results. The outputs must be clear and precise, as these will be required for the decision, which was the catalyst for the ERM assignment. Risk analysis does not need to or should not be carried out in a vacuum. Reference should be made to publications that document best practice. These references can then be listed as documents consulted during the course of the RM study.

8.5.7 Determine the timing, the *when*

The last section of the ToR should describe the *when*: when should the RM study be undertaken? When refers to both the start date and the duration. Overall timing will be driven by a series of issues such as the budget for the study, the availability of the participants, the date by which the results are required, the availability of information to conduct the study (such as budget or programme), the availability of the analyst(s), the complexity of the task, the amount of information to be reviewed and the number of stakeholders involved. Commonly problems occur when first the information supplied is incomplete and second, the time taken to “plug the gaps” exceeds expectations.

8.6 CLIENT RESPONSIBILITIES

For assignments to be a success, it is a common requirement for clients to undertake the following activities, to ensure that the participants engage in the process.

- Inform the participants that a consultant has been engaged and the objective(s) of the assignment.
- Inform the participants of the date, time and location any meetings/workshops.
- Book the venue for the workshop and arrange for refreshments/food as appropriate.
- Participate in a “kick-off” meeting.
- Make available any background material for the purpose of a desktop study at the outset of the assignment.
- Make serviced workstations available as appropriate.
- Make time available to review the outputs of the assignment and comment.

8.7 REMUNERATION

The financial terms of a commission may vary widely. They may for instance be based on a fixed price lump sum, day rates or an open book arrangement. The financial element of a proposal can lose a consultancy a commission or expose it to a loss. A fixed price lump sum requires the task in hand to be precisely defined to provide certainty over the time required for completion. Day rates provide no risk to a consultancy provided of course the day rate is sufficient to cover the consultant’s salary, expenses, overhead and profit. An open book arrangement is where the client is afforded complete disclosure of the consultant’s costs to the consultancy (in terms of salary and benefits, National Insurance and so on) and a day rate is agreed composed of the disclosed costs (staff and overhead) and an agreed profit percentage.

8.8 SUMMARY

This chapter examined the preparation of an ERM proposal by a consultant. It walks through the steps of preparation, writing the proposal and determining its content. A term of reference is described using the structure of the six ‘Ws’ and ‘H’. (The who, where, what, which, why, how and when.) The client responsibilities are explored in that no assignment can be carried out in a vacuum and that the client organisation itself is a significant determinant in whether an assignment is a success or not.

8.9 REFERENCE

Chapman, R. (2003) “Risky Business”, *Project*, October 2003.

Implementation

The previous chapter examined the preparation of an ERM proposal by a consultant. This chapter explores the implementation of an ERM assignment for the benefit of consultants and clients alike. Each assignment naturally has a start, a middle and an end. The start entails ensuring that the assignment heads in the right direction towards satisfying the goals of the assignment, the middle involves management of the assignment as if it were a project in its own right and the end entails completion of the deliverables, commonly describing the findings in a report and presenting the headline results. The key for enterprise risk management is ensuring that: it has added value to overall business performance; there are demonstrable benefits to spending money on consultancy fees and tying senior staff's time up in dialogue with consultants, supplying them with information and reviewing their outputs; and whether for instance the assignment reviewed a series of options which has the potential to save the business a considerable sum of money, or whether it has been procedural based where staff do not immediately see the benefit. Chapter 10, which is the first chapter of Part III, examines the individual processes within the overall process of enterprise risk management.

9.1 WRITTEN STATEMENT OF PROJECT IMPLEMENTATION

Prior to the appointment, there will have been an offer, which may have been in the form of a Terms of Reference as described in Chapter 8 or in some other format. This document will be the baseline from which the enterprise risk management service will be delivered. It will be a reference point for the consultant to ensure that he/she delivers the agreed outputs on completion of the assignment or provides an explanation why the outputs have changed, for whatever reason. The key will have been to leave the client with an output that provides a lasting enhancement to share value or provides support to securing a more attractive outcome for some business venture whether it be organisational change, an acquisition, an investment or launching a new product.

9.2 MANAGEMENT

Any assignment should be treated as if it were a project in its own right with objectives, a timeframe, resources, a budget, and end deliverables. Applying project management principles in this way will provide greater certainty of delivering the required outcome. The greater the number of team members and/or client representatives participating in the assignment the greater the importance of the application of management principles. It comes down to the who is doing what, when, how and why. The task must be broken down into manageable "lumps" which can all be assigned objectives, a timeframe, budget and resources.

9.2.1 Objectives

The objectives of the assignment must be translated into the activities and tasks to be undertaken. Any ambiguity or uncertainty about the assignment objectives must be ironed out at

the beginning otherwise this will lead to disappointment downstream. Hence it is important to understand the question that the sponsor is attempting to answer. Or put another way what is the decision that the sponsor wishes to make as a result of the assignment? Understanding the client's question will inform you of the information to be gathered, the individuals to be consulted, the findings that will have to be conveyed and possibly the tools and techniques that will have to be used. Sponsor questions might be:

- How likely is my project to be completed on time?
- What is the risk profile of my business proposal?
- Of the options under examination, taking account of the estimated risks, which one is likely to give me the best return on capital employed?
- How will embarking on this activity affect the rest of my business?
- What financial contingency should I allow for my capital project at, say, an 80% confidence level?
- What are the risks to my organisational change programme?
- How will the market risk profile change for product A over the next five years?

It is also important to know how the information provided to the client on completion of the assignment will be used as this will be a vital test as to its appropriateness. While it may be assumed how the information will be used, it is worth asking the direct question.

9.2.2 Planning the project

The premise is that the future can be envisaged and delivered. Once the objectives of the assignment have been clearly defined it is essential to plan the execution of the work in a logical structured manner. A project plan (Gantt chart or programme) is converting a project brief into a form that everyone understands. A plan will provide a structured basis for carrying out the assignment, for its control and completion by the due date. Preparation of the first pass of the plan will be an iterative process, in that as additional information becomes available, sequencing and activity and task durations will have to be modified. If the assignment entails participation by different specialists from the client team and or the assignment delivery team, all the participants should be consulted during the preparation of the plan to gain their buy-in. The primary activities need to be identified and then subdivided into the individual tasks that make up the activities. A task is completed by a single individual, whereas an activity may be completed by a group of people. Activities (and tasks) may be carried out in parallel and series. Activities that are carried out in parallel are independent and can be carried out concurrently. Activities that are carried out in series are dependent and carried out sequentially.

The value of the plan will be greater when a large team is involved, the assignment spans a long period of time, client participation is required for a large number of the activities or external parties have to be consulted. The plan should include any interim milestones such as reviews, data gathering tasks, decision gates or approvals. Plans can be prepared by placing Post-it® Notes on a flip chart to establish the correct order in which to carry out tasks, as they can be readily moved around until the preferred sequence is established. An alternative method is to use a software tool and construct a plan on the screen working it up from scratch, and then forwarding it on to other participants for their comments. The use of software enables a plan to be adjusted quickly and provides the opportunity to carry out “what-if” analysis to explore what changes in the duration or sequence of activities have on the overall duration. The ability to carry out certain tasks concurrently will be entirely dependent on the size of the assignment team.

9.2.3 Consultant team composition

In the instance where the assignment warrants more than one individual working on it, a team may be formed. Tasks may be assigned to an individual based on their individual capabilities, depth of knowledge, previous experience, problem solving skills, their speed of working or their time management ability. Commonly a mixture of these abilities is sought. Each task in the plan needs to be owned by someone in the risk management team. It will be their responsibility to ensure that their allocated tasks are completed in accordance with the plan. It will be their role to confirm at the outset that all the activities have been identified, the dependencies have been mapped, the estimates of durations are appropriate, and the work is completed in accordance with the dates included in the plan by monitoring progress and taking corrective steps to fix any shortfall. Whenever work is split between many participants it must be made explicit what the interfaces are, who has to supply what information to whom when, and how will all parts be brought together to form a cohesive answer at the end. Whether team members have worked together before will influence the ease with which they communicate, share information, understand their working methods, anticipate each other's likely behaviour and performance and gel as a team.

9.2.4 Interface with stakeholders

In the instance where a consultant is appointed, it is very rare for members of the client organisation not to be involved. These individuals have the power to influence, simply support, actively encourage, positively enhance or curtail an assignment. Their support is commonly critical to the successful completion of an assignment in terms of the value of the outputs. They can operate in both an overt and covert manner, more often than not driven by their personal values and goals, as opposed to those of the business. For some, protecting their position, impressing superiors and or maintaining reputation may be prime drivers behind behaviours. Their behaviour will also be influenced by the change that is being proposed to which the risks are initially being identified and assessed. Cope identifies four generic stakeholders, whose behaviours resonate with the author's personal experience (Cope 2003). Cope amusingly labels them "key person", "loose cannon", "little interest" and "desperate Dan"; however, their behaviours can make the management of any assignment difficult and more complex than it needs to be. Cope's description of their traits and characteristics are summarised as follows. "Key person" is a critical player in the assignment who has the power to affect change but whose actions are unpredictable. "Loose cannon" is the individual, who while being involved in the assignment, lacks the appropriate knowledge and does not have a real appreciation of the need for the change to which the risks are being assessed. "Little interest" is on the fringe but has the ability to affect the change, their interests lie elsewhere and they have no desire to get involved, initially at least. They may decide to get involved late in the day, disagree with some aspect of the assignment and withdraw funding, or change the direction of the proposed change. "Desperate Dan" has a high desire to get involved in the assignment, but has little capability, power or understanding of the need for change. The stakeholders will have to be monitored through an assignment and where possible influenced to secure successful completion of the assignment.

9.2.5 Data gathering

Data gathering is a critical process. It must be established what data needs to be obtained, where it is held and how it will be accessed. To fully understand the information obtained it

will be necessary to discuss its content with members of the client organisation. This can be accomplished through face-to-face interviews, focus groups or attending meetings where the subject matter is reviewed and discussed as part of routine business activities. When planning how to gather the data, it can help to take a slightly different approach in setting the boundaries to what is sought. Data gathering conventionally pushes for hard tangible and established facts, whereas the potential problems and risks may lie in the soft intangible areas of the business that the hard facts will never tell you. If a clinical view is taken of the problem, the resulting data will provide a firm foundation for the risk study but that is all; it will have no heart. Businesses, projects and change programmes are run by people. So risks will not solely emanate from, say, interest rates, outsourcing or competitor behaviour but from how individuals within the business chase opportunities or respond to emerging risks.

9.2.6 Budget

The budget of the assignment will need to be managed from a number of standpoints. If a fixed price lump sum has been offered, the time spent will have to be carefully managed to achieve the dual goals of achieving the assignment within the pre-planned period to ensure a profit is achieved and delivering the promised outputs. If the assignment has been accepted on a time charge basis due to uncertainty over the exact scope of the assignment, the time spend should be recorded against specific tasks to provide an audit trail and afford client review. In either situation, progress should be monitored on a regular cycle to ensure that planned expenditure against completion of the tasks matches expectations. Where it does not, the causes need to be addressed. If the scope of the assignment changes radically through its life and a mismatch between resource and budget occurs, this will have to be addressed with the sponsor of the assignment.

9.2.7 Assessment of risk

When assessing risk the culture of the organisation needs to be understood. Business culture will influence how activities are undertaken, methods of working, quality control, decision making, how individuals are rewarded, how poor performance is addressed and what is considered important. Members of a project team may deliberately suppress risks assessments, if they want a project to proceed due to personal time already expended to try to get it off the ground or if their jobs are dependent on the project proceeding. The reverse may be true in the situation of assessing an acquisition where risks are deliberately inflated, again as a result of uncertainty over job retention. Risks assessed in relation to a new IT project may be artificially suppressed as it is felt the new system will significantly reduce administrative tasks while not providing the return on investment envisaged by the board.

9.2.8 Deliverables

The deliverables must reflect the original Terms of Reference or explain any deviation. Ideally they should exceed what was commissioned. The deliverables may take a number of forms but their sole purpose is communication. Hence the most appropriate forms of communication should be selected whether this be a histogram, radar chart, risk map, cumulative frequency curve, pie chart, table, scatter diagram, programme, Pert chart, flow chart, influence diagram, decision tree or other technique. In many instances the output will inform a decision. Any

assumptions made in settling on the figures to use in say, a financial model, must be made explicit so that the weight that can be attached to the findings is representative of the quality of the input.

9.2.9 Presentation of the findings

Findings are commonly presented in a report. Before commencing writing the report, it is important to identify the readers, understand what they already know and what they need to know, find out how much knowledge they are likely to have and what their involvement with the assignment has been to date. Collect the material together, have full access to the information needed to write the report, formulate the objectives (what the piece of writing must convey) and then write. Consider whether the readers will have the same level of knowledge of the subject matter and how the report should be modified to suit. Think through whether it will be appropriate to include a glossary of technical terms. Keep confidential information confidential. It may be unlikely that all client personnel are as well briefed as the consultant. The findings must be thought through and provide a rational argument.

What should the response to the findings be? Do nothing? Is it reasonable to assume that the risk will disappear over time because of other factors, or should the planned business activity be abandoned as the risks far outweigh any potential benefit? Deeper diagnosis: are the results inconclusive or is there sufficient uncertainty around the aspects not studied in depth that further investigation is required? The premise being that by gathering further information on the issue in anticipation that the greater clarity afforded will lead to greater risk reduction. Should an alternative strategy be sought? Is the risk sufficiently large that an alternative approach is warranted, one that bypasses the problem and does not attempt to tackle it? Would it be appropriate to ignore and plough through? Is the momentum behind the planned activity so great that it alters the business's risk appetite and the business is prepared to take on more risk in the firm belief that the activity will achieve the anticipated contribution to bottom-line performance? Once the "riskiness" of a particular course of action has been assessed this is not an end in itself. What specific response actions should be considered? It may be necessary to implement a series of interrelated response actions to address the risk identified.

9.2.10 Key factors for successful implementation

The development and implementation of risk management systems to identify, assess, evaluate, plan and manage enterprise-wide risks requires a methodical structured approach. There are a series of key factors that can increase the probability of success.

- Clarifying the objectives of the assignment so they are clearly understood by both the sponsor and those carrying out the assignment.
- Developing a clear plan with objectives, deliverables, responsibilities and timeframe.
- Assigning an experienced and knowledgeable risk management professional to lead the assignment.
- Using consistent terminology throughout any reports produced and producing a glossary of terms where appropriate.
- Providing an audit trail that can be followed on completion of the assignment in terms of the documents that were referred to during the course of the assignment, any initial work which formed the foundation of the assignment, the individuals involved and where appropriate

- the roles that they undertook, the software employed so that the results can be replicated and any assumptions that were made to place the results in context.
- Ensuring the key business representatives participated in the assignment.

9.3 CUSTOMER DELIGHT

Lambert provides a customer delight questionnaire, which could be completed by employees of a consultancy providing enterprise risk management (Lambert 1998). It provides a tool with which consultants may challenge themselves in terms of their current practices to see where improvement in the provision of services could be accomplished. It provides a unified focus on those things that matter. The complete questionnaire is included in its entirety in Table 9.1. It could be argued that it is too long and repetitive in places.

Table 9.1 Customer delight questionnaire

For each characteristic, rate the extent to which the statement is true of your organisation today using the following scale:

- 1 – Not true at all
- 2 – True to a small extent
- 3 – Moderately true
- 4 – True to a great extent
- 5 – True all the time without any reservation

Vision and commitment

- 1 Our organisation is totally committed to the idea of creating delighted customers at the end of every transaction. ☐
 - 2 We seek to do things right first time, every time. ☐
 - 3 Executives always demonstrate by their actions their personal commitment to customer satisfaction. ☐
 - 4 Our driving intention is always to exceed customer expectations in those things that matter most to them. ☐
 - 5 We promote and reward employees on the basis of their demonstrated commitment to customer care. ☐
 - 6 Everybody in our organisation has confirmed their personal commitment to total quality. ☐
 - 7 Satisfying customer needs always takes precedence over satisfying our own internal needs. ☐
 - 8 We reward with praise or tangible benefits every example of exceptional customer service. ☐
 - 9 When mistakes are made we focus on problem solving and not the apportionment of blame. ☐
 - 10 We communicate fully to customers our intention to give them superior service. ☐
- Your score ☐

Client/customer relationships

- 1 When it comes to selling we play a consultative role with our customers. ☐
 - 2 In advertising, selling and promotion we avoid promising more than we can deliver. ☐
 - 3 We know the attributes of our products which customers value most. ☐
 - 4 Information from customers is fully utilised in designing our service and product offering. ☐
 - 5 We strive to be the leader in our industry in terms of customer retention. ☐
- Your score ☐

Client/customer problems

- 1 We monitor all customer complaints. ☐
- 2 We regularly ask customers to give us feedback on our performance. ☐

Table 9.1 (Continued)

| | |
|--|--------------------------|
| 3 Customer complaints are analysed to identify quality or service problems. | <input type="checkbox"/> |
| 4 We identify and eliminate internal procedures which cause customer problems. | <input type="checkbox"/> |
| 5 We refuse to live with convenient internal policies or procedures which fail to give added value to our customers. | <input type="checkbox"/> |
| Your score | <input type="checkbox"/> |

Client/customer understanding

| | |
|---|--------------------------|
| 1 We know how our customers define "quality". | <input type="checkbox"/> |
| 2 We provide opportunities for all employees, whatever their function, at some time to meet with customers. | <input type="checkbox"/> |
| 3 We clearly understand what our customers expect of us. | <input type="checkbox"/> |
| 4 Our key managers clearly understand our customers' requirements. | <input type="checkbox"/> |
| 5 Our top team has frequent contact with customers. | <input type="checkbox"/> |
| Your score | <input type="checkbox"/> |

Making it easy for clients and customers to do business with us

| | |
|--|--------------------------|
| 1 We make it as convenient as possible for our customers to do business with us. | <input type="checkbox"/> |
| 2 Employees are encouraged to go "above and beyond" to serve customers well. | <input type="checkbox"/> |
| 3 Employees are told, as clearly as we know how, what they are free to do on their own authority to satisfy customers. | <input type="checkbox"/> |
| 4 We make it easy for customers to complain to us if they believe they have cause. | <input type="checkbox"/> |
| 5 We do everything reasonable to resolve customer complaints quickly. | <input type="checkbox"/> |
| Your score | <input type="checkbox"/> |

Empowerment

| | |
|--|--------------------------|
| 1 We treat all employees with respect at all times. | <input type="checkbox"/> |
| 2 Employees at all levels have a good understanding of our products and services. | <input type="checkbox"/> |
| 3 Employees who work for customers are supported with resources to enable them to do their job well. | <input type="checkbox"/> |
| 4 At all levels of the organisation employees are empowered to act on their own judgement to make things right for a customer. | <input type="checkbox"/> |
| 5 Employees feel that they are part of an exciting enterprise. | <input type="checkbox"/> |
| Your score | <input type="checkbox"/> |

Training and development

| | |
|---|--------------------------|
| 1 Decisions are pushed down to the lowest levels in the organisation capable and qualified to make them. | <input type="checkbox"/> |
| 2 No lower-level employee is expected to make a decision for which they lack either the skills, knowledge, experience or confidence to ensure a good outcome. | <input type="checkbox"/> |
| 3 Managers are trained in the complexities of developing the autonomy of the workforce. | <input type="checkbox"/> |
| 4 Employees at all levels make at least some significant decisions about their own work. | <input type="checkbox"/> |
| 5 Employees are cross-trained so that they can support and fill in for each other when necessary. | <input type="checkbox"/> |
| Your score | <input type="checkbox"/> |

Business and organisational growth

| | |
|--|--------------------------|
| 1 Instead of competing with each other, functional groups cooperate to achieve shared goals. | <input type="checkbox"/> |
| 2 We study the best practices of other companies to see how we may do things better. | <input type="checkbox"/> |
| 3 We work continuously to improve our products and processes. | <input type="checkbox"/> |

(Continued)

Table 9.1 Customer delight questionnaire (*Continued*)

Business and organisational growth (*Continued*)

- 4 When a new product or service would meet a known customer need, we bust a gut to make it available to them.

5 We have a comprehensive quality policy throughout our organisation.

6 We recognise and respect the needs of the internal customer at every level.

7 Our employees understand that quality means consistently meeting customer need at lowest cost, and they strive to reduce costs without damaging customer service.

8 Our employees value and use creativity to provide exceptional service and build profitability.

9 The key values of the organisation are known to and owned by all.

10 We invest in the development of innovative ideas.
- ☐

☐

☐

☐

☐

☐

☐
- Your score ☐

Employee attitude to quality

- 1 Every employee fully understands that total quality requires them consistently to meet internal and external customer needs at the lowest possible cost.

2 Every employee recognises that they have a personal role to play in the marketing of our products and services and actively seek to create, identify and satisfy customer needs at a profit.
- ☐

☐
- Your score ☐

Reproduced with permission from *High Income Consulting: How to Build and Market your Professional Practice 2E* (1997) Nicholas Brealey Publishing.

9.4 SUMMARY

This chapter looked at implementing an enterprise risk management assignment focusing on the management of delivery. Significant to delivery are a series of issues such as clarity of the objectives, programming and resources. In addition common to all assignments are a number of critical success factors, which influence both delivery and customer satisfaction. A customer delight survey for completion by employees of consultancies engaging in enterprise risk management is included and is based on the questionnaire proposed by Lambert for all consultancies.

9.5 REFERENCES

Cope, M. (2003) *The Seven Cs of Consulting, the Definitive Guide to the Consulting Process*, Pearson Education Limited, UK, p. 2.

OGC (2002) *Delivering World-class Consultancy Services to the Public Sector, a Statement of Best Practice*, joint authors: the Management Consultancies Association (MCA), Institute of Management Consultancy (IMC) and the Office of Government Commerce (OGC), mailto: ServiceDesk@ogc.gsi.gov.uk.

Lambert, T. (1998) *High Income Consulting, How to Build and Market your Professional Practice*, second edition (this edition first published in 1997), Nicholas Brealey Publishing, London.

Part III

The Risk Management Process

Part III is subdivided into six chapters and each chapter describes one of the core risk management stages known as analysis, identification, assessment, evaluation, planning and management. Collectively these stages form a logical sequence of activities necessary for a robust approach to the implementation of enterprise risk management. All of these stages are present in most guides on the subject of risk management published over the last 10 years, albeit some of the stages may have different labels. The latest guide, published by COSO,^{1,2} uses similar but not identical stages. For instance it splits the planning and management activities described here across four stages. The table included within Appendix 2 records what might be described as the key guides and publications, as a source of reference.

To describe these stages and their interrelationships, the chapters in Part III are structured on early process mapping³ initiatives sponsored by the United States Air Force during their ICAM Program.⁴ The goal of the Program was to develop a baseline for generic subsystem process planning that could be developed through the cooperative effort of a large number of industry partners. In essence the baseline was to act as a communication tool. The catalyst for adopting process mapping to describe the enterprise risk management process is the excellent book by Hall⁵ called *Managing Risk: Methods for Software Systems Development*.

The rationale for adopting process mapping here is to enable the individual stages in the overall risk management process to be both structured and, similarly, readily communicated. As risk management involves group participation, the overall process and its constituent incremental stages must be readily understood. The overall risk management process described in the form of a process map, is illustrated in Figure P3.1. Each of the stages labelled A1 through to A6 are described in Chapters 10 to 15 respectively, as an individual process with its own unique goals, subgoals, inputs, outputs, controls, mechanisms and activities.

The major elements of this functional process map adopted by the ICAM Program were later named “IDEFO”.⁶ The identifying characteristics of the IDEFO technique are that it is based on the organised and systematic combination of graphics and text, to provide understanding and analysis. It provides a structure and logic for implementing potential changes. An IDEFO

¹ COSO (2004) *Enterprise Risk Management – Integrated Framework*, September, published by The Committee of Sponsoring Organisations of the Treadway Commission.

² The Committee of Sponsoring Organisations of the Treadway Commission (COSO) is a voluntary private sector organisation dedicated to improving the quality of financial reporting through corporate governance, effective internal controls and business ethics, effective internal controls and corporate governance. COSO was originally formed in 1985 to sponsor the National Commission on Fraudulent Financial Reporting, an independent private sector initiative which studied the causal factors that lead to fraudulent financial reporting and developed recommendations for public companies and their independent auditors. The chairman of the National Commission was James Treadway Jr (a former commissioner of the US Securities and Exchange Commission), hence COSO is sometimes simply referred to as the “Treadway Commission”.

³ “Process mapping” is now a widely recognised management tool, initially developed and implemented by General Electric as part of a strategy to significantly improve their bottom-line business performance.

⁴ The US Air Force ICAM (Integrated Computer Aided Manufacturing) Program adopted the SADT (Structured Analysis and Design Technique) originally developed in 1972 by Douglas T. Ross of SofTech as “The Architecture Method” (or process design).

⁵ Hall, E.M. (1998) *Managing Risk: Methods for Software Systems Development*, Addison Wesley Longman Inc., SEI Series in Software Engineering, Massachusetts, USA.

⁶ “IDEFO” is the abbreviation for *Integration Definition for Function Modelling*. This is the name by which the major elements of the process mapping activity-modelling technique, initially used by the ICAM Program, became known.

Process map of the risk management phases

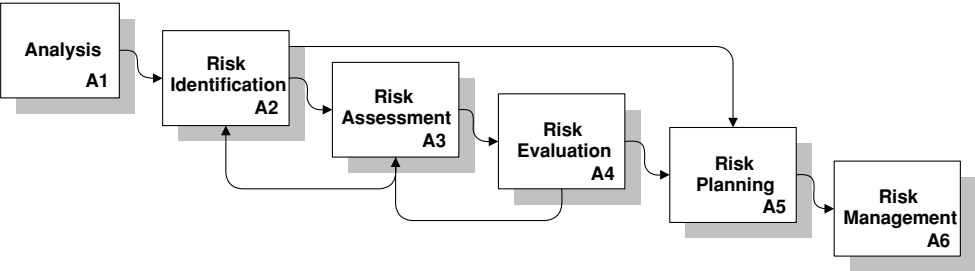


Figure P3.1 Stages in the risk management process

process map is composed of a hierarchical series of diagrams that gradually display increasing levels of detail describing functions and their interfaces across all processes. The building blocks of the IDEFO process mapping technique are the individual processes that have their own unique data flows. IDEFO adopts “box and arrow” graphics as a visual communication tool to facilitate the planning, development and implementation of process systems. The rules of the IDEFO process map include syntax rules for graphics (boxes and arrows, where boxes are processes and arrows are data flows) and data connectivity (Input, Control, Output and Mechanism (ICOM)) codes. Controls can be considered as constraints and Mechanisms can be considered as enablers. A simple process is included in Figure P3.2, which illustrates the four modes of data connectivity.

These modes of data connectivity are used to describe how the risk management stages are implemented and how the output of one process forms the input to the subsequent process.

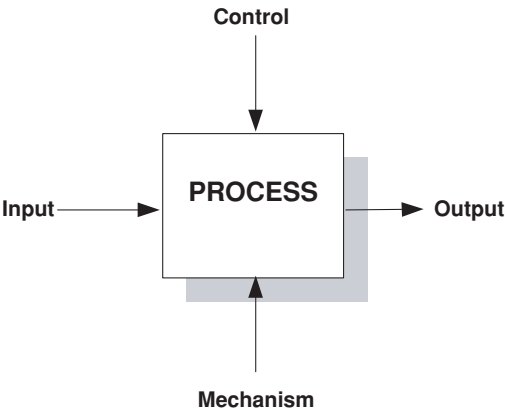


Figure P3.2 IDEFO process design notation. Process elements are described by IDEFO using inputs, outputs, control and mechanisms

Analysing the Business: Stage 1

Analysis of the business is the first stage in the overall six-stage process of enterprise risk management. Analysis of the business is concerned with gaining an understanding of (1) the background to the business as a whole, in general terms, and (2) the specific business activity, process or project, forming the subject of the risk management study. It provides a basic foundation for everything that follows. How well this process is completed will determine the quality of the remainder of the risk management process. The objective of this first stage (Stage 1) is to discover timely and accurate data. However, its degree of usefulness will depend on its relevance, breadth, depth and currency, in terms of providing sufficient insights to create a prompt tool with substance and teeth. It is not uncommon for representatives of the business under examination to either regard activities such as investigation, research or diagnosis as expensive and wasteful, or be frustrated by the time required to carry them out. Typically these representatives fail to recall that their own knowledge has been built up over months or even years. But even when time is of the essence, discipline and rigour needs to be applied so that important issues are not missed or overlooked. The three most important aspects of risk management are preparation, preparation and preparation. Before data gathering can commence, a decision must be made as to the approach to be adopted and the information to be examined. This will largely be dictated by the focus of the study, such as whether it is analysis of:

- a single business activity or project;
- a single department's planned or ongoing activities within a business;
- a proposed merger or acquisition;
- a new production facility overseas;

or

- a "health check" of existing risk management procedures;
- a "health check" of an individual business case model, investment proposal or quantitative project risk model.

The next chapter describes the Risk Identification stage (Stage 2). The ability of the risk facilitator to question and challenge the participants engaged in the risk identification process will (to a large part) be dictated by the depth and breadth of analysis carried out in this stage (Stage 1) and the facilitator's own knowledge and experience of the business type or project under examination. The structure of Chapter 10 is illustrated in Figure 10.1.

10.1 PROCESS

Adopting the philosophy of process mapping, each stage within the overall risk study exists to make a contribution to one or more of the risk management goals. Each stage is a process in its own right. Hence each process should be measured against specific process goals that reflect the

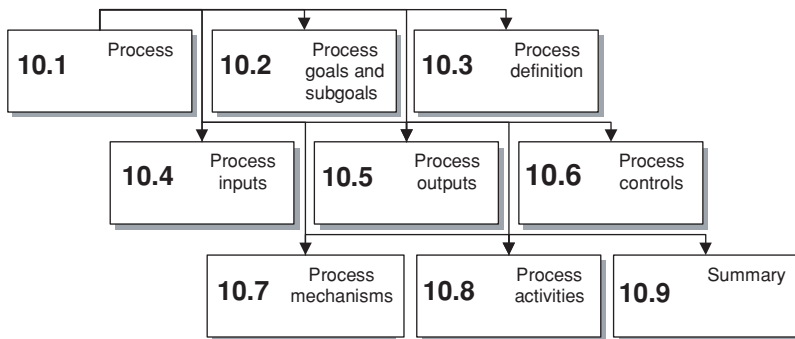


Figure 10.1 Structure of Chapter 10

contribution that the process is expected to make to the risk management study. Processes are simpler to comprehend when they have primary and subgoals. Hence analysis is described here as having a primary process goal which is accomplished by a series of what have been termed subgoals, as described below. Any one process is accomplished within a context and might be considered to have two perspectives. The *external view* examines the process inputs, outputs, controls and mechanisms. The *internal view* examines the process activities that transform inputs to outputs, applying the mechanisms and being influenced by the controls.

10.2 PROCESS GOAL AND SUBGOALS

The primary process goal of “analysis” (the first stage in the risk management process) is to understand the business processes to inform the following incremental stage in the overall risk management process. While recognising the analysis stage will be tailored to suit the particular requirements of the assignment or study, when an overview of the whole business is being obtained, the analysis stage will be sufficient when it satisfies these subgoals:

- the business objectives are established;
- an organogram of the business structure is obtained or constructed;
- the business process map was examined, or where one does not exist, a high-level process map is constructed;
- the existing internal controls are established and examined;
- all of the primary business functions are examined;
- the existing corporate risk management plan is reviewed, along with the remit of the Audit Committee;
- the business risk appetite is made explicit;
- the existing risk register was reviewed (if one had been prepared);
- personnel are involved from all appropriate company departments and no departments are excluded or forgotten;
- department representatives participating in the analysis process are senior enough to be knowledgeable in their own area of specialisation and be aware of both corporate lessons learnt and company risk exposure; and
- consideration was given to consultation with non-executive directors and where appropriate they are included in the risk identification process.

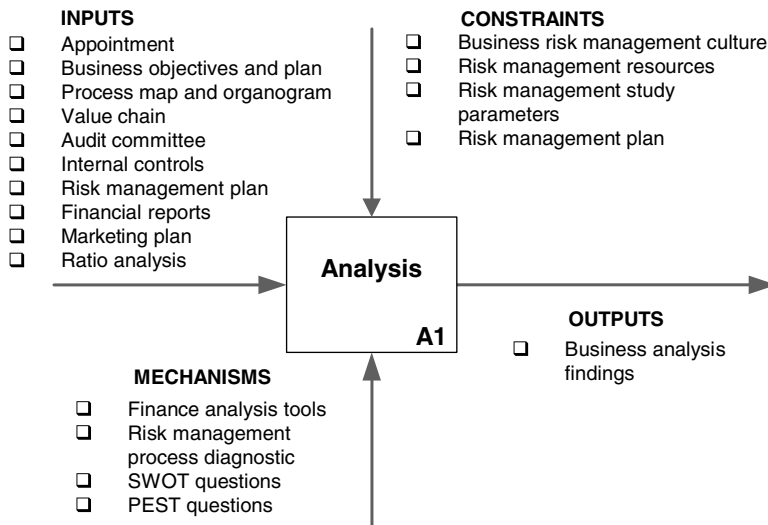


Figure 10.2 Analysis process illustrating the inputs, output, constraints and mechanisms

10.3 PROCESS DEFINITION

The analysis process is described by an IDEFO¹ diagram, see Figure 10.2. The diagram describes a process with inputs entering on the left of the box, outputs leaving on the right of the box, controls entering from above and mechanisms or enablers entering from below.

10.4 PROCESS INPUTS

The following are suggested inputs to the analysis process, but should be tailored to suit the study requirements. An explanation is provided for each input for the sake of clarity.

- Appointment details are the specific issues recorded in the assignment prepared by the sponsor/client that the assignment must address/examine.
- Business objectives are statements of the business goals against which success will be measured. They must be concise, easy to understand and enduring. They should ideally consist of no more than five bullet points and hence can be easily memorised and recalled.
- The business plan is, in simple terms, a statement of how the business will accomplish its business objective(s). The style, length and content of a business plan will depend on the business decision or activities the plan is designed to support and the audience for whom the plan is prepared. It documents why the forecast effort and time will be worth the expenditure to achieve the change and the anticipated benefits.
- A business process map is a management tool used to describe, in workflow diagrams and supporting text, every vital step in a business's processes. It is a communication tool to better understand existing processes and to eliminate or simplify those requiring change. It sets down the sequence of activities that will be undertaken. Where a process map has been developed it will be a vital asset in quickly comprehending the business processes, how they

¹ Integration Definition for Function Modelling.

interface and the potential sources of risk. Where a process map does not exist, time is well spent in constructing a high-level map, to be able to “get inside the business”. A map can be used as an interviewing aid with business function heads to search out the risks pertinent to their specific area of operations. It also enables the relationship between risks to be more readily understood and sensitivity analysis to be carried out.

- An organogram is an organisational chart which describes the organisational structure of the business. It is consistent with the vision and objectives of the business. The organisational structure reflects the responsibilities for delivering margin and takes account of the elements of the value chain. It identifies the lines of reporting, span of control and in some instances staff numbers. Reporting lines identify responsibilities, power and information flow.
- A value chain is a consistent policy thread throughout all businesses activities. Value chain analysis explores the configuration and linkage of different activities that form a chain from the original raw materials through processing, manufacturing, packaging, distribution and retailing to the end customer. Analysis is used to identify a strategy mismatch between different elements of the value chain. If a company competes on the basis of low costs, then every part of the value chain should be geared towards low cost. If a policy is to keep stocks to a minimum (in order to respond quickly to changing customer tastes and not be left with extensive redundant stock), each element of the business activity chain should be geared around just-in-time manufacture.
- The audit committee is responsible for monitoring the integrity and completeness of a company's financial statements and in particular for establishing whether management has adopted appropriate accounting policies and supported them with realistic estimates and judgements. Where no alternative arrangements have been made by the board, the audit committee may also be closely involved in reviewing the effectiveness of the company's risk management system.
- Internal controls are the controls designed to ensure the business's policies are put into practice, the organisation's values are met, laws and regulations are complied with, required processes are adhered to, financial statements and other published information are accurate and reliable; and human, financial and other resources are managed effectively and efficiently.
- A risk management plan is a “map” of the intended implementation of risk management to support a project or a business activity. A risk management plan will typically describe the objectives of the risk study, project overview, the risk study timeframe, resources to be deployed, the risk management process, the responsibilities of the parties and the study deliverables.
- Projected financial statements portray the predicted financial outcomes of pursuing a particular course of action. By showing the financial implications of certain decisions, managers should be able to allocate resources in a more efficient and effective manner. The projected financial statements will normally comprise a cash flow statement, profit and loss account and a balance sheet.
- The marketing plan contains a detailed description of the marketing mix and guidelines for the implementation of the business's marketing programmes. The marketing mix is defined by the four Ps: product, price, promotion and place. All elements of the marketing mix together constitute the “offer”. The offer is more than the product. It is a value proposition that satisfies customer needs. The attributes of the offer are defined by the marketing mix.
- Ratios analysis provides a picture of a firm's performance, liquidity, profitability, efficiency and vulnerability.

10.5 PROCESS OUTPUTS

The output is simply the business analysis findings. These findings should be recorded and included in any report prepared on the conclusion of the study. An appendix should be included in the report listing the documents referred to, their title, date and author (should further reference need to be made to them). The findings will act as prompts to inform the identification process.

10.6 PROCESS CONTROLS (CONSTRAINTS)

From Figure 10.2, the business risk management culture, resources, study and plan (where one exists) are described as regulating/constraining the risk identification process.

- The business risk management culture will constrain the risk identification process in terms of the degree of importance, commitment and enthusiasm attached to the process and the extent of support provided when the risk management process is initiated.
- The risk management resources will constrain risk identification in terms of time. When cost is a constraint, particularly when external support is being commissioned, less expensive and most likely less experienced staff may be allocated to the assignment. When time is limited and risk management activities are accelerated, there is a strong likelihood the quality of the output will diminish. All of these constraints are likely to compromise process effectiveness, particularly the breadth of risk identification, potentially leaving “blind spots”.
- The risk management study itself will constrain the risk identification process if:
 - the study lacks a clear focus;
 - the activities are too ambitious for the timescale;
 - inadequate notice is provided to attendees of interviews or workshops;
 - inadequate notification is given to attendees of: the purpose of the study, timetable of events and/or their expected involvement;
 - inadequate experience on the part of the facilitator;
 - inadequate preparation on the part of the facilitator and the attendees;
 - participants are unfamiliar with the process, terminology and products of risk management;
 - key participants are not available to suit the timetable; and
 - participants bring additional personnel of their own volition, without consulting the sponsor.

This can lead to an inadequate study from a number of perspectives, the most serious of which is that the risk study is too superficial or shallow, leading to a series of blind spots across the potential sources of risk.

- The risk management plan will also constrain the risk identification process if roles and responsibilities are not clearly defined, business objectives are not captured and disseminated to participants, the timing of studies are not timetabled and diarised in advance and the purpose of the process is unclear.

10.7 PROCESS MECHANISMS (ENABLERS)

Four of the common process mechanisms are:

- Financial analysis tools (ratios)
- Risk management process diagnostic
- SWOT questions
- PEST questions

10.7.1 Ratios

Financial ratios can be used to examine various aspects of financial position and performance and are widely used for planning, control and evaluation purposes. They can be used to evaluate the financial health of a business and can be utilised by management in a wide variety of decision making involving such areas as profit planning, pricing, working capital management, financial structure and dividend policy. Financial ratios provide a quick and relatively simple means of examining the financial condition of a business. A ratio simply expresses the relation of one figure appearing in the financial statements to some other figure appearing there (for example, net profit in relation to capital employed) or perhaps some resource of the business. Ratios can be grouped into certain categories, each of which reflects a particular aspect of financial performance or position. The following broad categories provide a useful basis for explaining the nature of the financial ratios to be considered:

Profitability: Businesses come into being with the primary purpose of creating wealth for their owners. Profitability ratios provide an insight into the degree of success of the management in achieving this purpose. They express the profits made in relation to other key figures in the financial statements or to some business resource.

Efficiency: Ratios may be used to measure the efficiency with which certain resources have been utilised within the business. These ratios are also referred to as activity ratios.

Liquidity: Liquidity is an important measure of risk exposure. It is vital to a business that there are sufficient liquid resources available to meet maturing obligations. Certain ratios may be calculated which examine the relationship between liquid resources held and creditors due for payment in the near future.

Gearing: Gearing is an important issue which managers must consider when making financing decisions. The relationship between the amount financed by the owners of the business and the amount contributed by outsiders has an important effect on the degree of risk associated with a business.

Investment: Certain ratios are concerned with assessing the returns and performance of shares held in a particular business.

Key aspects of calculating ratios to aid risk analysis:

- Where there was considered to be a risk relating to the inability to repay amounts owing in the short term, the liquidity ratio would be of interest.
- Where there was considered to be a risk to returns on investment, the profitability, investment and gearing ratios would be of interest.
- In the event that there was concern by long-term lenders over the long-term viability of the business, the profitability and gearing ratios would likely to be of interest.

The ratios that may be useful for business analysis are included in Appendix 5.

10.7.2 Risk management process diagnostic

Difficulties of embedding risk management

ERM studies that focus on the effectiveness of existing risk management processes will need to establish how well developed risk management processes are and how effectively they have been embedded into the organisation. Risk management is a fundamental building block of

business management. However, its integration into an organisation is not straightforward. The Office of Government Commerce (2002) provides an insight into this complexity by describing eight key areas, which it sees as critical to the establishment of an effective risk management process, as follows:

- Clearly identified senior management support, own and lead on risk management.
- Risk management policies and the benefits of effective management clearly communicated to all staff.
- Existence and adoption of a framework for management of risk that is transparent and repeatable.
- Existence of an organisational culture which supports well thought-through risk taking and innovation.
- Management of risk fully embedded in management processes and consistently applied.
- Management of risk closely linked to achievement of objectives.
- Risk associated with working with other organisations explicitly assessed and managed.
- Risks actively monitored and regularly reviewed on a constructive “no-blame” basis.

Hillson (1997) in a paper proposing a Risk Maturity Model (RMM) describes the difficulties of embedding risk management into an organisation. He states that the implementation of risk management into an organisation is not a minor challenge and that it cannot be undertaken in a short period of time. In addition that it is:

not a simple process of identifying techniques, sending staff on training courses, buying software and getting on with it. Risk capability is a broad spectrum, ranging from the occasional information application of risk techniques to specific projects, through routine formal processes applied widely, to a risk-aware culture with proactive management of uncertainty.

The difficulties of integrating risk management into an organisation are also highlighted in a paper produced by the Risk Management Research and Development Program Collaboration (2002), as follows:

[...] effective implementations of risk management processes into organisations and projects are not common. Those who have tried to integrate risk management into their business processes have reported differing degrees of success, and some have given up the attempt without achieving the potential benefits. In many of these uncompleted cases, it appears that expectations were unrealistic, and there was no clear vision of what implementation would involve or how it should be managed. Organisations attempting to implement a formal structured approach to risk management need to treat the implementation itself as a project, requiring clear objectives and success criteria, proper planning and resourcing, and effective monitoring and control.

Establishing the effectiveness of existing risk management processes

The collaboration (referred to above) suggests an assessment can be made of the effectiveness of existing formal risk management procedures by undertaking a review. The objective of such a review would be to benchmark the organisation's present maturity and capability in managing risk, using a generally accepted framework such as a risk maturity model (sometimes referred to as a process diagnostic). Fully developed risk maturity models are useful tools in understanding the degree of sophistication of a business risk management process, its reliability and effectiveness in identifying, assessing and managing risks and opportunities. Risk Maturity Models provide guidance to organisations who wish to develop or improve their approach to risk management, allowing them to assess their current level of maturity, identify realistic targets for improvement and develop action plans for increasing their risk capability. Risk Maturity Models,

proposed by Hillson (1997) and Hopkinson (2000) are described in Appendix 6. In addition a business risk maturity model is proposed by the author for assessing business risk management processes based on four levels of maturity called initial, basic, standard and advanced.

10.7.3 SWOT analysis

SWOT is an acronym for Strengths, Weaknesses, Opportunities and Threats. The SWOT analysis headings provide a framework for reviewing a business as a whole or a series of issues such as: a strategic option; an opportunity to make an acquisition; a potential partnership; a new product; a business proposition; or outsourcing an activity. A SWOT analysis is a subjective assessment of data, which is organised by the SWOT format into a logical order that helps understanding, presentation, discussion and decision making. The SWOT analysis template is normally presented as a grid, comprising four sections, one for each of the SWOT headings: Strengths, Weaknesses, Opportunities and Threats. A SWOT analysis can be used specifically for risk identification, which is discussed in Section 11.7.6 in the following chapter.

A SWOT analysis can be considered as bringing together a strategic review of a business and in particular (Friend and Zehle 2004):

- the analysis of the firm (internal elements);
- the market analysis (internal and external elements);
- the product, portfolio and matrix analysis (internal and external elements);
- the analysis of the general environment (external elements).

Guidance on implementing a SWOT analysis is included in Appendix 7.

10.7.4 PEST analysis

A PEST analysis is a useful tool for analysing a business and in particular understanding market growth or decline. PEST is an acronym for Political, Economic, Social and Technological factors, which are used to assess the market for a business or organisational unit. It is a business measurement tool. Businesses are continually reacting to changes in the environments in which they operate. Proactive businesses try to anticipate change in their external environment by monitoring trends through, say, market research. This means that they can plan and be prepared. Reactive businesses wait until change has happened and then have to decide what to do. They are taken by surprise and tend to move from one crisis to another. As a result decision making is rushed and tends to be less effective. To make effective decisions, businesses should be constantly scanning their environment to identify changes and potential risks and prepare for them. A PEST analysis of Political, Economic, Social and Technological factors will reveal many of the external environmental influences on a business's performance. These influences are part of the macroenvironment over which a business has no control. An initial PEST analysis can be undertaken as part of a desktop study and then used again with a project team or business group to gain a broad consensus of senior managers of the external influences.

Guidance on implementing a PEST analysis is included in Appendix 8.

10.8 PROCESS ACTIVITIES

The Stage 1 risk study process activities will be dictated by the objectives of the study and hence will have to be tailored to suit the information that needs to be gathered. Depending on the breadth of the risk study, the activities undertaken will consist of a selection of or possibly all of

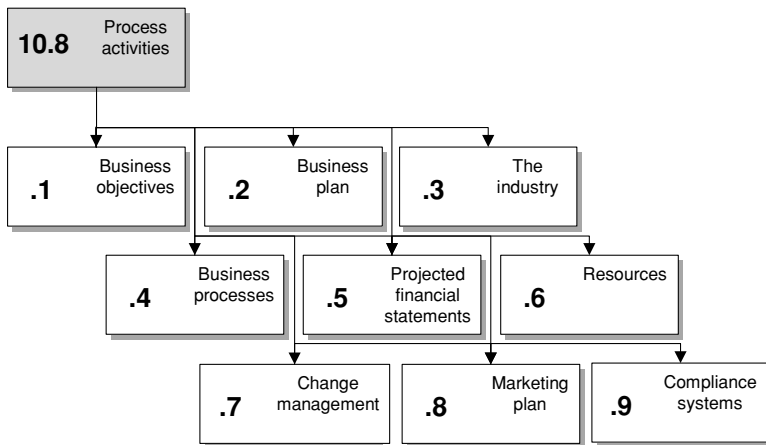


Figure 10.3 Structure of Section 10.8

the activities listed below. If the desire is to construct a high-level process map of the business activities or risk breakdown structure to aid risk identification, a thorough understanding of the business operations will be required and the context within which they operate.

- Clarifying and recording the business objectives or business objectives subset under examination
- Examining the business plan
- Examining the industry (business position/market context/regulatory framework)
- Business processes
- Projected financial statements
- Resources
- Change management
- Marketing plan
- Compliance systems

Process activities may also include internal controls, the role of the Audit Committee and examination of the existing risk management processes. Figure 10.3 describes the likely activities that will be undertaken as part of the process.

10.8.1 Business objectives

The first and most important activity is understanding and recording the business objectives. In the next process of the risk management process (Process 2), the objective of the study will be to identify the risks and opportunities to these objectives. The business objectives will be the criteria against which the success of the business strategy will be measured. The business strategy being the overall plan aimed at achieving sustainable competitive advantage to produce healthy profits. The objectives should be SMART:

- Specific
- Measurable

- Achievable within the timeframe included in the business strategy
- Relevant in the context of the business vision (broad direction such as the leading provider of mobile phones)
- Timebound

10.8.2 Business plan

Examination of the business plan is important as it should provide a “story”. It should explain how the business will achieve its objectives in a coherent, consistent and cohesive manner. The “story” should be focused on the customer. The plan should identify the market, its growth prospects, the target customers and the main competitors. It should be based on a credible set of assumptions and should identify the assumptions to which the success of the business is most sensitive. It should identify the risks facing the business, the scale of the downside should they materialise and the actions planned to reduce or remove the risks. As the blueprint for the business, it should describe what makes the business different from its competitors, its USP (unique selling point) and how it will maintain its competitive advantage in the long term. It should describe the experience and track record of the management team and for larger organisations, provide similar details for those holding key support posts in implementing the business. Additionally it should identify the source of funding and the cost of that funding. When viewed as part of a risk study, the currency of the plan should be established, particularly the market analysis. A checklist for a good business plan is as follows:

- tell a coherent and cohesive, customer focused story;
- clearly define the market, customers, suppliers and competitors;
- contain credible planning assumptions and sales forecasts;
- describe how the business will achieve sustainable competitive advantage;
- identify the assumptions to the business to which it is most sensitive;
- identify the risks that the business faces and the planned or ongoing response actions;
- identify the opportunities that it plans to exploit;
- contain a summary of the experience of the managers and key staff involved in managing the business; and
- identify the funding requirements and the source of funding.

A study by the risk analyst of the business plan against this checklist will provide an early indication as to whether there are any significant gaps in the business strategy which in themselves may pose either threats or the loss of potential opportunities.

10.8.3 Examining the industry

To understand the risks that a business faces it is necessary to understand the industry within which the business is operating and the competitive forces within that industry. Questions to be answered include the following:

- what is the current size of the industry?
- what are the major trends and changes in the industry?
- who are the competitors and what are their current strengths?

Techniques for industry analysis that may be used to obtain an understanding of the contexts of the business are an industry overview, the industry lifecycle, structural analysis and main competitor analysis.

- *Industry overview*: The first task is to collect some basic data about the sector relevant to the business under examination. This may include such relevant metrics as:
 - annual sales in value for the last three years;
 - annual unit or volume sales for the last three years;
 - trend in prices for the last three years; and
 - a measure of capacity and possibly capacity utilisation.
 Competitors should be identified by name and their market share should be listed. This should be combined into a measure of concentration, such as “the top 20% of competitors serve 80% of the market”.
- *The industry lifecycle*: The industry lifecycle is measured in total industry sales over time. The structure of the industry and the competitive forces that shape the environment in which a business operates, changes throughout the lifecycle.
- *Structural analysis*: Understanding the structure of an industry is the basis for the formulation of competitive strategy. An industry is an open system and is affected by potential entrants, suppliers, buyers and the threat of competition from substitutes.
- *Main competitor analysis*: A company of any substance will have undertaken market analysis. The intensity of competition or rivalry will have a significant impact on the ability of the business under examination to generate adequate margins.

10.8.4 Establishing the processes

Process mapping is recognised as a proven analytical and communication tool to improve understanding of a business’s existing processes and eliminate or simplify those requiring change (Hunt 1996). A business “process is a series of steps designed to produce a product or service”. A business enterprise is only as successful as its processes. Process mapping provides a proven tool with which to understand business processes to help improve bottom-line performance and competitive position. Without knowing where you are at a given moment it is hard to determine how to get to your destination.

A roadmap (process map) is a communication tool which enables a business to better understand its processes. A business process may be defined as a series of steps to produce a product or service. Rummler and Brache (1994) describe three primary processes:

- Processes which result in a product or service that is received by an organisation’s external customer. These are known as “customer processes”.
- Processes which produce products or services that are invisible to the external customer but essential to the effective management of the business. These are known as “administrative processes”.
- Processes which are actions taken by managers to support the business processes. These are known as “management processes”.

Examples of customer and administrative processes are included in Table 10.1.

Hunt (1996) argues that business enterprise performance is driven by three process variables: (1) process goals, (2) process design and (3) process management. He states that each customer and administrative process exists to make a contribution to one or more business enterprise

Table 10.1 Examples of business processes

Generic customer processes

- Marketing and sales
- Product/service development and introduction
- Manufacturing
- Distribution
- Billing
- Order processing
- Customer service

Industry-specific customer processes

- Loan processing (banking)
- Claim adjudication (insurance)
- Grant allocation (government)
- Merchandise return (retail)
- Food preparation (restaurants)
- Baggage handling (airline)
- Reservation handling (hotels)

Generic administrative processes

- Formal strategic and tactical planning
- Budgeting
- Training
- Facilities management
- Purchasing
- Information technology (IT) management

goals. Hence each process should be measured against process goals that reflect the contribution that the process is expected to make to one or more of the business enterprise goals. Processes need to be designed to achieve those goals efficiently.

To create a process map, a high-level map is developed initially to obtain a manageable over-all picture of the key processes, showing the complete chain of activities within the business. The high-level process mapping stage enables businesses to (1) determine where their process starts and ends, (2) to identify what is included in the process, (3) name the process, (4) state the purpose of the process, (5) create several map flow charts of the process at a high level and (6) identify the products and services of the process. More detailed lower-level process mapping is then performed to assist business managers to examine specific process steps for each high-level process step.

A process can be seen as a “value chain”. By its contribution to the creation or delivery of a product or service, each step in a process should add value to the preceding step. The subject of value chains is discussed further under Section 10.8.6.

10.8.5 Projected financial statements

Projected financial statements portray the predicted financial outcomes of pursuing a particular course of action. By showing the financial implications of certain decisions, managers should be able to allocate resources in a more efficient and effective manner. The projected financial statements will normally comprise a *cash flow statement*, *profit and loss account* and a *balance sheet*. Where there are competing options, projected statements can be prepared for each of the

options being considered. They will set out the expected revenues and costs associated with each option and will reveal the impact of these items on the future profitability, liquidity and financial position of the business. Where managers are considering only one course of action, projected financial statements can still be extremely useful. The preparation of projected statements will still provide a useful insight to the impact of a particular course of action on the future financial position for the business. For example, where a business is considering a strategy to increase market share, managers need to satisfy themselves that adequate resources are available to sustain the planned growth in sales. Projected financial statements will also help managers to strike an appropriate balance between sales, operating capability and finance levels.

For most businesses, the starting point for preparing projected statements will be the forecast for sales. The ability to sell the goods or services produced will normally be the key factor which decides the overall level of activity for the business. A reliable sales position is, therefore, essential as many other items including certain costs, stock levels, fixed assets and financing requirements will be determined partially or completely by the level of sales for the period. As can be imagined, forecasting the future level of sales is both a difficult and critical task. Future sales will be influenced by a number of factors including the degree of competition, the planned expenditure on advertising, the quality of the product or service, changes in consumer tastes and the condition of the economy. Some of these issues will be under the control of the business, others will not. The sales forecasts must take account of all of the relevant factors if reliable figures are to be produced. Sales projects may be based on market research, statistical techniques or economic models.

A projected cash flow statement is useful because it helps to identify changes in liquidity of a business over time. Cash can be described as the “life blood” of a business. It is vital for a business to have sufficient liquid resources to meet its ongoing obligations. Failure to meet an adequate level of liquidity can have disastrous consequences for a business. The projected cash flow statement helps to assess the impact of expected future events on the cash balance. It will identify periods where there are cash surpluses and cash deficits and will allow managers to plan for these occurrences. In terms of forecasting costs, while some costs will vary directly and proportionately with the level of sales, other costs are unaffected by the level of sales in the period. Cost of sales, materials consumed and sales force commission are examples of variable costs which vary directly with sales output. Other costs such as depreciation, rent, rates, insurance and salaries may stay fixed during the period irrespective of the level of sales generated and are referred to as fixed costs. Some costs have both a fixed and a variable element, may vary partially with sales output and are referred to as semi-variable costs.

A projected profit and loss account helps to provide an insight into the expected level of profits. When preparing the profit and loss account, all revenues that are realised (achieved) should be included within the relevant period. All expenses (including non-cash items such as depreciation) that relate to the revenues realised in the period must be shown in the profit and loss account in which the sales appear. The timing of the cash outflows for expenses is also irrelevant.

A projected balance sheet reveals the end-of-period balances for assets, liabilities and capital and should normally be the last of the three statements to be prepared. This is because the previous statements prepared will produce information to be used when preparing the projected balance sheet. The projected cash flow statement reveals the end-of-period cash balance for inclusion under the “current assets”. The projected profit and loss account reveals the projected profit (loss) for the period for inclusion under the “share capital and reserves” section of the

balance sheet. In terms of forecasting balance sheet items, the numbers of items appearing on the balance sheet of a business are likely to increase automatically with an increase in the level of sales. An increase in the level of sales should lead to an increase in the level of current assets where a business is likely to need:

- more cash to meet the increased costs incurred;
- higher levels of trade debtors as a result of higher sales; and
- higher levels of stock to meet the increase in demand.

Additionally an increase in the level of sales should also lead to an increase in the level of current liabilities. A business is likely to incur more trade creditors as a result of increased purchases and more accrued expenses as a result of increased overhead costs. The projected financial statements once prepared should be critically examined by managers. There is a danger that the figures contained within the statements will be too readily accepted by those without a financial background. Questions should be asked such as:

- how reliable are the projections which have been made?
- what underlying assumptions have been made and are they valid?
- have all relevant items been included?

The projected statements can be examined to find answers to a variety of questions concerning the future performance and position of the business. These questions may include any or all of the following:

- Are the cash flows satisfactory?
- Is there need for additional financing?
- Can any surplus funds be profitably reinvested?
- Is the level of profit satisfactory to the risks involved?
- Are the sales items at a satisfactory level?
- Is the financial position at the end of the period acceptable?
- Is the level of borrowing acceptable?
- Is the dependency on borrowing acceptable?

10.8.6 Resources

One method of analysing a business is to identify its resources and explore how these resources are used to competitive advantage. Businesses that allocate and deploy their resources in the most efficient manner are likely to achieve a greater return on capital employed than those that do not. There are three aspects to the analysis of a business's resources:

- *The resources themselves*: Resources can be a competitive advantage, as rivals may not have access to the same resources and may not be able to duplicate similar resources within their own business in terms of experience and number. This is the central principle of the resource-based view of competitive advantage and can be analysed using tools such as VRIO (see Appendix 9).
- *The configuration of the resources*: Resources can be a source of competitive advantage, an opportunity. If a business configures its resources optimally, it will have a competitive advantage over its rivals. This view is central to the value chain and value system concept of competitive advantage. An analytical tool for adding value throughout a business is called value chain analysis, which is described in Appendix 10.

- *The resource audit:* This covers operational, human and financial resources. The objective of the resource audit is to identify resources and ascertain how effectively resources are utilised and deployed. The contents of a resource audit are discussed in Appendix 11.

10.8.7 Change management

No one solution fits all situations. Hence change leaders cannot afford the risk of blindly applying a standard change recipe and hoping it will work. Successful change takes place on a path that is appropriate to the specific situation. The factors common to successful change projects are described in Appendix 12.

10.8.8 Marketing plan

Rivalry among firms is the central force determining a business's competitive position. It is therefore necessary to analyse competitors. The elements of a competitor analysis are:

- Current strategy or positioning
- Strengths, weaknesses, opportunities, threats
- Possible changes in strategy
- Financial strength
- Operational strength
- Resource strength
- Research and development strength

Markets are becoming more complex and unpredictable with technology and information flows permitting companies to sense and react to competitors at a faster rate. This accelerated competition means it is no longer possible to wait for a competitor to make a move before deciding how to react. The new watchwords are anticipation and preparation for every eventuality. Every move of a competitor is met with a rapid countermove to ensure any advantage is temporary. Sony, a household name in digital consumer electronics, was both surprised and severely affected by inroads Apple made with their iPod, in a market that Sony had pioneered with its Walkman. The most pronounced or intense rivalries have spawned the cola wars where every move Coca Cola makes was met by Pepsi Cola and every initiative by Pepsi was quickly countered by Coke. More recently in the world of telecommunications, every advertisement by MCI immediately stimulated a response by AT&T, and vice versa. As soon as Kodak launches a new disposable camera, it appears Fuji will have a similar model ready for the market. Currently banks and building societies have launched credit card wars, where offers are quickly matched. BT and Wanadoo are competing for the broadband market. No company can afford to let its rivals gain an obvious advantage for long. Hence when a company brings a good new product to the market they cannot be complacent. An example being when in the 1970s Okidata brought an excellent dot-matrix line printer to the market winning a significant share of the market, Hewlett Packard responded by offering the laserjets. These were a family of highly reliable printers based on a technological breakthrough that made them faster and quieter with greater resolution. Hewlett Packard had produced a breakpoint in the market. Okidata stubbornly continued to market their dot matrix losing significant market share to Hewlett Packard. Research and development is critical to compete in the market place and developments by competitors can be so radical that they change the market landscape shifting consumer needs. These are what are termed industry breakpoints. Breakpoints are discussed in more detail in Appendix 13.

10.8.9 Compliance systems

Any analysis of a business should understand the regulatory framework within which the business operates, which will be particularly important for, say, the pharmaceutical, utility, defence, nuclear and financial sectors. Business pressures, arising from the regulatory regime and the repercussions for failing to comply, need to be understood and captured.

10.9 SUMMARY

The implementation of the Analysis process (the first stage in the overall risk management process) is critical to the quality of any risk management study. Its execution will have a direct bearing on the relevance, breadth, depth and currency of the information available to provide insights into the business so that identification and assessment can be conducted in a meaningful and not a superficial way. Analysis will be vital in acting as a prompt to interrogate the sources of risk, determine the essential participants in any identification process and identify the subjects that will warrant closer inspection. Any Analysis will be tailored to suit the objectives of any risk management study. The process activities are likely to look at the business objectives, plan and processes, financial statements, resources, change management and the marketing plan.

10.10 REFERENCES

- Friend, G. and Zehle, S. (2004) *Guide to Business Planning*, Profile Books Limited, London, p. 48.
- Hillson, D. (1997) "Towards a Risk Maturity Model", *The International Journal of Project and Business Risk Management*, Vol. 1, Spring, pp. 35–45.
- Hopkinson, M. (2000) "Risk Maturity Models in Practice", *Risk Management Bulletin*, Vol. 5, Issue 4.
- Hunt, V.D. (1996) *Process Mapping, How to Reengineer Your Business Processes*, John Wiley and Sons Inc., USA.
- Office of Government Commerce (2002) *Management of Risk: Guidance for Practitioners*, The Stationery Office, UK.
- Risk Management Research and Development Program Collaboration (2002) "Risk Management Maturity Level Development", April. Formal Collaboration between INCOSE Risk Management Working Group Project Management Institute Risk Management Specific Interest Group and UK Association for Project Management Risk Specific Interest Group.
- Rummler, G.A. and Brache, A.P. (1994) *Improving Performance: How to Manage the White Space on the Organization Chart*, Jossey-Bass San, Francisco, CA.

Risk Identification: Stage 2

The previous chapter examined Stage 1 – analysis of the business – which is a prerequisite to undertaking risk identification. This chapter examines the risk identification stage through the lens of the process mapping technique known as IDEFO. All risk management process frameworks state a need to identify risk events (upside and downside) at the outset of activities. Identifying risks requires undertaking two key activities: thinking through and recognising the *source* of the risks and opportunities (upside risks) and *searching* out and identifying both the risks and opportunities. What makes the identification process interesting is that the market place is in a constant state of flux. The risks identified to a business last week will not be entirely the same as the risks identified to the same business next week. For global businesses there is greater immediacy, where the risks and opportunities identified yesterday may well be different to those identified tomorrow. The structure of this chapter is illustrated in Figure 11.1. The next chapter examines the process of risk assessment and the attendant benefits.

11.1 PROCESS

Risk identification is a transformation process (commonly facilitated by a risk practitioner) where experienced personnel generate a series of risks and opportunities, which are recorded in a risk register. As risk identification is one process in the overall risk management process it is useful to adopt the philosophy of process mapping, where each process exists to make a contribution to one or more of the risk management goals. Hence each process should be measured against specific process goals that reflect the contribution that the process is expected to make to the risk management study. Processes are simpler to comprehend when they have primary goals and subgoals. Therefore risk identification is described here as having a primary process goal which is accomplished by a series of what have been termed subgoals, see below. Any one process is accomplished within a context and might be considered to have two perspectives. The *external view* examines the process inputs, outputs, controls and mechanisms. The *internal view* examines the transformation process, where inputs are transformed to outputs through the application of the process mechanisms. This process is subject to modification and influence by potential controls.

11.2 PROCESS GOAL AND SUBGOALS

The primary process goal of risk identification is to identify both the *risks* to the business, which would reduce or remove the likelihood of the business reaching its objectives, and the *opportunities*, which could enhance business performance.

The risk and opportunity identification process will have been sufficient when it has satisfied these subgoals:

- The overall management of the business activity was understood.
- The risk identification process was not commenced before the business objectives (or the objectives of the activity under examination) were made explicit. (Risks are only threats to

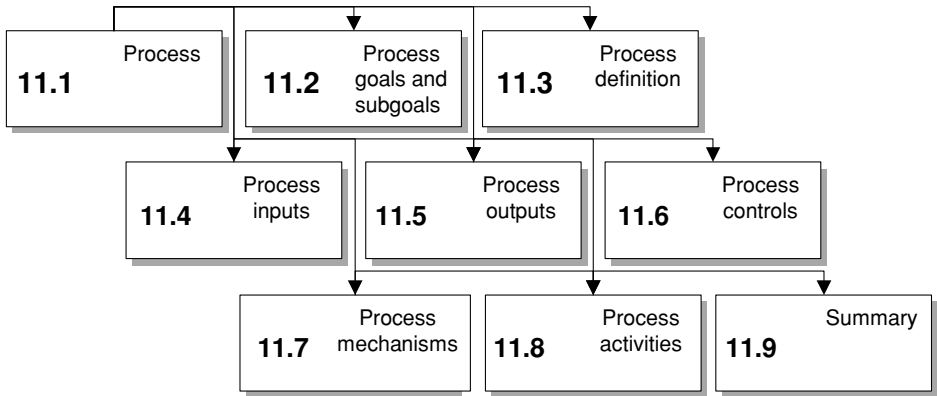


Figure 11.1 Structure of Chapter 11

objectives. Without understanding the objectives it is not possible to undertake risk identification.)

- Risk identification was not commenced until the business objectives, deliverables and success criteria were aligned.
- Risk identification was not commenced prior to a “map” or flow chart of the business process being prepared.
- The risk identification process was comprehensive, examining all primary sources of risk and opportunity. The process of identification was undertaken with the aid of a process map or risk breakdown structure, which included all core business activities.
- Personnel were involved from all appropriate company departments and no departments had been excluded or forgotten.
- Department representatives participating in the identification process were senior enough to be knowledgeable in their area of specialisation and were aware of both corporate lessons learnt and company risk exposure.
- Consideration had been given to consultation with non-executive directors and where appropriate they had been included in the risk identification process.
- Risk descriptions are comprehensive and comprehensible to all the participants in the identification process. In particular that they are and will be readily understood and thought meaningful, weeks after completion of the identification process.
- The risk descriptions are pure risks and not a mixture of causes and effects. Programme overrun, for example, is not a risk but the effect of a risk.
- The interdependencies between the risks have been identified.

11.3 PROCESS DEFINITION

The risk identification process is described by an IDEFO¹ diagram, see Figure 11.2. The diagram describes a transformation process with inputs entering on the left of the box, outputs leaving on the right of the box, controls (constraints) entering from above and mechanisms (enablers) entering from below.

¹ *Integration Definition for Function Modelling.*

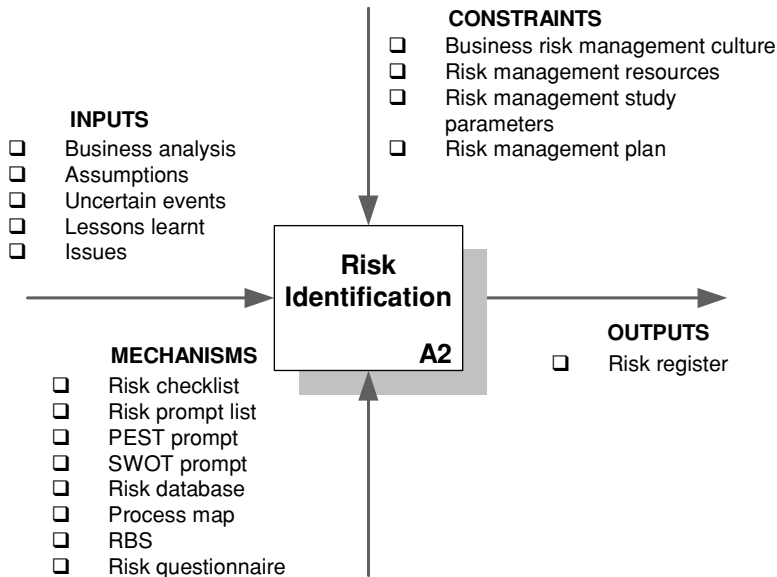


Figure 11.2 Risk identification process

11.4 PROCESS INPUTS

The inputs to the identification process are those listed in Figure 11.2. There is clear disagreement in the literature regarding the definition of risk and uncertainty. The debate, discussed by Chapman (1998a) continues to unfold without resolution. The definitions of uncertainty and risk adopted below have been applied successfully to risk commissions across the rail, water, health, construction, heritage, media and petrochemical industries. From experience, the chosen definition of the terms needs to be explained to the participants at the outset of the study and their use be consistently applied throughout the course of the study.

- *Assumptions* are statements of belief concerning the outcome of future events. These future events may be aspects of a project or business venture. They are assessments made at a point in time, which are assumed to be correct but are not borne out by facts and hence not proven. Assumptions can be classified as risks to an activity until such time that sufficient information has been obtained either to confirm a supposition or disprove it. Assumptions can cover such issues as competitor behaviour, size of market, potential changes in the market, the availability of resources and increases in fuel or energy costs. For projects, one particular area where assumptions are commonly made is the performance of contractors, subcontractors and suppliers. In the context of projects, the PRAM Guide (APM 1997) describes a test to establish whether an assumption should be considered as part of risk identification. The test is composed of two questions which relate to the sensitivity of the assumption to the project and the stability of the assumption as follows (my additions in brackets):

Sensitivity: how important is the assumption to [the] achievement of [the] project objectives? This can be assessed qualitatively on a scale such as: insignificant, of minor importance, important, vital, [or] crucial. It may prove useful to identify which project objectives depend on each assumption.

Stability: how likely is the assumption to prove false? High/Medium/Low scales may be useful for this, or a more direct assessment of likelihood can be made using a percentage probability estimate.

The Guide goes on to say that once the assumptions have been assessed in these two dimensions, they can be ranked in order of uncertainty. It states that those with high scores in both dimensions should be considered as potential risks. That is, those assumptions on which the project is particularly dependent and which will have a significant chance of proving to be false.

- *Uncertain events* are described here as relating to known events, which are certain to occur, but their magnitude is unclear. The cost of bored pile foundations of a new headquarters building is an uncertain event. While it is possible to carry out soil surveys, calculate the ground-bearing ratio and complete a piling design, due to varying ground conditions across a site, it is not until the auger has bored the hole that the required depth of a pile can be determined.
- *Lessons learnt* are as you would imagine lessons learnt from a completed activity or project in terms of what went well and should be repeated and what did not go well and should be improved upon should a similar activity be embarked upon in the future. Capturing lessons learnt is essential for informed decision making and business improvement to avoid the repetition of actions that had an unfavourable outcome and capitalise on the positive outcomes.
- *Issues* are matters that are identified and recorded as unresolved, in terms of the approach to be adopted. Over time an issue may be removed or translated into a fixed cost, an uncertainty or a risk.
- *Business analysis* is the group of findings arrived at from conducting the activities described in the previous chapter.

11.5 PROCESS OUTPUTS

The output is a risk register. The content of the register needs to be tailored to the task undertaken. The typical contents of a risk register are included in Table 11.2 (see Section 11.7.10). The register should be structured using the business case section headings, a risk breakdown structure, a risk taxonomy, or where the risk study relates to an investment decision such as a new building, the work breakdown structure or project lifecycle. The risk register is a key communication tool as it is referred to and incrementally developed throughout the overall risk management process.

11.6 PROCESS CONTROLS (CONSTRAINTS)

From Figure 11.1 it is suggested here that the business risk management culture, resources, risk management system and plan (where one exists) regulate/constrain the risk identification process. These controls were discussed in Section 10.6.

11.7 PROCESS MECHANISMS (ENABLERS)

11.7.1 Risk checklist

A risk checklist, as described by the PRAM Guide² (APM 1997), is an in-house list of risks “that were identified on previous projects”. Projects in the context of enterprise risk are either

² PRAM is an acronym for Project Risk Analysis and Management.

capital investment projects or business activities. Risk checklists are often developed from managers' past experience. Checklists permit managers to capture lessons learnt and assess whether similar risks are relevant to the business activities of today.

11.7.2 Risk prompt list

A risk prompt list, as described by the first edition of the PRAM Guide (APM 1997), is a list which "categorises risks into types or areas". The HM Treasury guide (HM Treasury 2001) known as *The Orange Book*, which aims to provide "pointers to developing a strategic framework for the organisational consideration of risk", provides a schedule of what it considers the most common categories of risk with examples of source and effect for each category (see Appendix 2). Authors Cooper (2004), Day (2001) and Holliwell (1998) also suggest risk categories, as does BSI publication PD 6668 (BSI PD 6668 2000) (see Appendix 2). *The Orange Book* (HM Treasury 2004) revised categorisation of risk is based on the PESTLE model as described at www.strategy.gov.uk where the acronym stands for Political, Economic, Social, Technological, Legal and Environmental (see Appendix 8). Prompt lists have to be used with caution, as described in the second edition of the PRAM guide, as by their nature they may be too exhaustive or too project specific (APM 2004).

11.7.3 Gap analysis

Gap analysis can be used to draw out the main risks to an activity or project and is commonly carried out by calling upon department heads to complete a questionnaire. An extract of a sample questionnaire is included in Figure 11.4.

- The questionnaire calls for an assessment to be made as to the current status of an activity in terms of how well it has been completed to date.
- The questionnaire identifies the two extremes in terms of the worst (column headed "1") and best (column headed "5") position for the project.
- Recipients of the questionnaire are requested to score each row/line item inserting an "X" in the column denoting their perception of the current project position and a "Y" in the column denoting the realistically achievable position.

| 1 | 2 | 3 | 4 | 5 |
|---------------------------------------|---|---------------------------------|-----------------------------|--------------------------------------|
| Activity not commenced/ undertaken | Activity commenced but in outline only | Activity partially completed | Activity almost complete | Activity completed satisfactorily |
| Critical risk | Major risk | Significant risk | Minor risk | No risk to the project |

Figure 11.3 Definition of categories of risk

| Ref | Process | Issue | Worst condition | 1 | 2 | 3 | 4 | 5 | Best condition |
|-----|----------|--------------|--|---|---|---|---|---|---|
| 2.1 | Planning | Organisation | Decision-making process and its requirements (within the client organisation) not clearly communicated | | X | | | Y | Decision-making process and its requirements clearly communicated |

Figure 11.4 Structure of questionnaire

- Recipients of the questionnaire are required to comment on all issues (as far as possible). If they are unable to comment on an item they are requested to please place a “P” in column 1 indicating that they do not have any or insufficient knowledge to comment on this activity/issue.

The meaning behind columns 1 to 5 is explained in Figure 11.3.

11.7.4 Risk taxonomy

The business risk taxonomy (BRT) proposed here provides a structured checklist that organises known enterprise risks into general classes subdivided into elements and attributes. Attributes can be further subdivided into features if this is found to be productive. A taxonomy enables risk and opportunity to be broken down into manageable components that can then be aggregated for exposure measurement, management and reporting purposes. The BRT is based on a software risk taxonomy developed by the Software Engineering Institute of Carnegie Mellon University, Pittsburgh, Pennsylvania, USA (Carr *et al.* 1993), see Figure 11.5.

The BRT provides a framework for studying business management issues and is a structure for eliciting risks from commonly recognised risk sources in the business environment. Source information for the BRT is included in Appendix 2. The taxonomy proposed here organises business risks into four levels (as opposed to the three levels in the Carr *et al.* model described above) – class, element, attribute and feature – and is illustrated in part in Table 11.1. The taxonomy is organised into nine major classes, which are further divided into elements. For example, the class “Operational” has five elements. Each element in turn is broken down into its attributes. An example of features is included under Strategy in Table 17.2. The proposed taxonomy incorporates and builds on Annex 7, entitled “Detailed Loss Event Type Classification”, sometimes called the Basel matrix, included in the revised framework for measuring capital adequacy known as Basel II. Annex 7 relates solely to operational risk.

Each of the sources of risk is examined in Part V, commencing with Chapter 19. For risk identification to be effective it needs to be comprehensive. So while the assignment of elements to classes varies between regulators, authors and practitioners, the important thing to remember

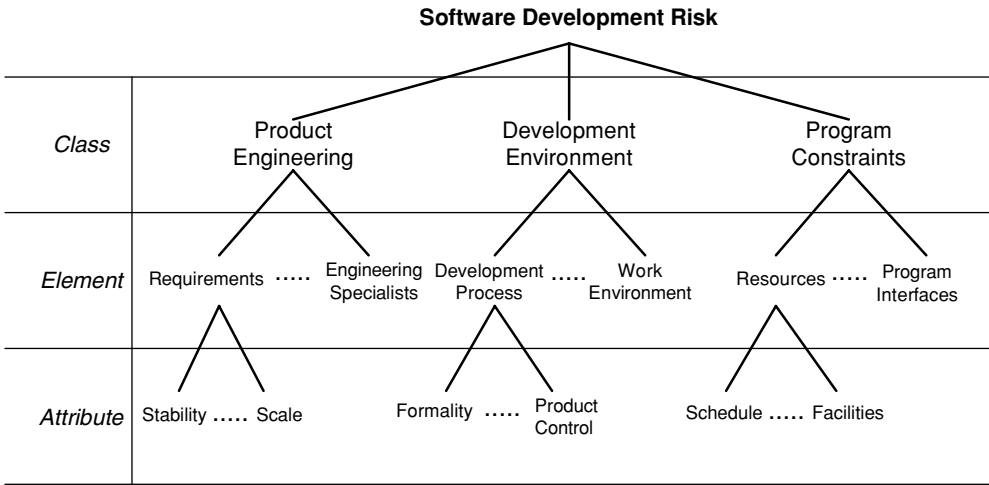


Figure 11.5 Software development risk taxonomy (Carr *et al.* 1993)
 Special permission to reproduce “Taxonomy-Based Risk Identification”, © 1993 by Carnegie Mellon University, is granted by the Software Engineering Institute.

is that their inclusion within a taxonomy is more important than their precise location, as unidentified risks are unmanaged risks. Due to the nature of risk, the boundaries between classes are sometimes not clear and each business must decide for itself where sources of risk will reside in their bespoke taxonomy. Information risk is not listed as a class of its own as information risk is assumed to be inherent in all of the elements, in that the quality of the information gleaned when investigating these risks will directly relate to the quality of the decisions made when using the information. Each business should develop its own taxonomy. The taxonomy for a bank will be markedly different from an aircraft manufacturer, which in turn will be markedly different from a petrochemical company. Any taxonomy produced should be maintained as a live document, to reflect the changing business environment.

11.7.5 PEST prompt

PEST analysis (where PEST is an acronym for Political, Economic, Social and Technological factors) was previously discussed in Section 10.7.4. It is referred to here, as it is another tool for uncovering risk exposure. Completing a PEST analysis is very simple and can be used during a workshop or as part of a brainstorming session. A PEST analysis measures a market (a SWOT analysis measures a business unit, a proposition or an idea). The PEST model can be expanded to seven factors by adding Ecological, Legislative and Industry Analysis (the model is then known as PESTELI). To be effective prior to the commencement of a PEST analysis the subject must be made clear to the participants so that they properly understand the goals. Hence the PEST subject should be a clear definition of the market being addressed, which might be from any of the following standpoints: a company looking at its market; a specific business unit; a product looking at its market; a brand in relation to its market; a strategic option or an investment opportunity. Common and beneficial applications of PEST are providing greater understanding and insights into competitors and market position. Guidance on implementing a PEST analysis is included in Appendix 8.

Table 11.1 Business risk taxonomy

| Internal Processes | | |
|---|---|---|
| Financial | Operational (<i>Class</i>) | Technological |
| 1. Liquidity risk 2. Credit risk (a) default (b) exposure (c) recovery (d) counterparty 3. Borrowing risk 4. Currency risk 5. Funding risk 6. Foreign investment risk (e) country risk (f) environment risk 7. Derivatives | 1. Strategy (<i>Element</i>) (a) objectives (<i>Attribute</i>) (b) business plan (c) new business development (d) resources (e) stakeholder interests (f) corporate experience (e) reputation 2. People (a) HR management practices (b) salaries (c) regulatory and statutory requirements (d) staff constraints (e) staff dishonesty (f) risk management system (g) health and safety 3. Processes and systems (a) controls (b) regulatory and statutory requirements (c) continuity (d) indicators of loss (e) transactions (f) computer/IT system (i) knowledge management (j) project management 4. External events (a) change management (b) business continuity 5. Outsourcing | 1. Information technology (a) software (b) MISs (c) intranets (d) telematics (e) information assets 2. Communication (a) broadband (b) video conferencing (c) e-commerce (d) e-mail 3. Control technology (a) CAD (b) CAM (c) FMS (d) Mechatronics (e) MRP (f) operational research 4. IT governance 5. Investment 6. IT projects |
| Business Operating Environment | | |
| Economic | Environmental | Legal |
| 1. Macroeconomics 2. Microeconomics 3. Government policy 4. Aggregate demand 5. Aggregate supply 6. Employment levels 7. Inflation 8. Interest rate 9. House prices 10. International trade + protection 11. Currency risk | 1. Energy sources 2. Use of resources 3. Pollution 4. Global warming 5. Levies/emission controls 6. Environmental sustainability | 1. Companies 2. Intellectual property 3. Employment law 4. Contracts 5. Criminal liability 6. Computer misuse |

(Continued)

Table 11.1 Business risk taxonomy (*Continued*)

| Political | Market | Social |
|--|---|--|
| 1. Contracts 2. Transition economies 3. UK government fiscal policies 4. Pressure groups 5. Terrorism and blackmail | 1. Market structure (a) number of firms (b) barriers to entry (c) new entrants (d) homogeneous goods (e) knowledge (f) relationships 2. Product lifecycle stage 3. Alternative strategic directions 4. Acquisition 5. Game theory 6. Price elasticity 7. Distribution strength | 1. Education (a) general level (b) language skills 2. Population movements (a) location (b) age mix (c) pensions (d) “grey market” 3. Socio-economic patterns 4. Crime (a) business vulnerability (b) staff relocation 5. Lifestyles + social attitudes |

11.7.6 SWOT prompt

A SWOT analysis can be used to draw out the risks and opportunities facing an enterprise and has the advantage of being quick to implement and readily understood. Analysis of the strengths, weaknesses, opportunities and threats brings together the results of both analysis of the company (internal) and environmental analysis (external). The results of a PEST analysis (discussed above) can be used to inform the environmental analysis. The process of creating a SWOT analysis is valuable because it involves discussion among the key managers in the business. It stimulates thinking that is not overly structured or restrictive. Implementation of a SWOT analysis is discussed in Appendix 7.

11.7.7 Database

A risk database has a number of benefits. A newly constructed database can be used to capture information in a controlled and consistent way. Depending on its construction, its availability on a computer network and the access rights established, it can permit multiple users to enter data or view the current information held. The fields that a database would commonly hold are those listed below. Databases provide an audit trail of identification, assessment and implementation of management actions. Where risk information is collected on the completion of a project as part of a lessons learnt study it can be used to inform subsequent projects. This is accomplished by recording the risks that materialised, how they were addressed, budget and outturn costs, contingency allocation and spend and achievement against objectives.

- Risk ID
- Date of entry
- Status of the risk
- Originator
- Owner
- Actionee
- Manager
- Risk category

- Risk description
- Probability
- Consequence (cost)
- Consequence (time)
- Consequence (business activity)
- Risk date
- Project
- Phase
- WBS
- Business function
- RBS element
- Risk response category
- Risk action
- Cost of response
- Indicator
- Trigger

A populated risk database established during previous analysis, provided it relates to a similar subject and is comprehensive in terms of the fields that it contains, may be used as an enabler in a variety of ways.

- It may help the construction of a risk breakdown structure.
- It can provide a register of risks to use as a prompt during interviews.
- It can be used as an interrogation tool to learn about risks associated with a particular subject.
- It can assist with possible risk responses to the risks identified during the current analysis.
- It can tell you who in the organisation dealt with a particular category of risk in the past.

11.7.8 Business risk breakdown structure

A Business Risk Breakdown Structure (BRBS) is defined here as: “A hierarchical decomposition of the business environment through to business processes, assembled to illustrate potential sources of risk. It organises and defines the total extent of business operations established to accomplish the business objectives. Each descending level represents an increasingly detailed definition of sources of risk to the business.” Business Risk Breakdown Structures have their roots in project management Work Breakdown Structures (WBS). The WBS is considered a key planning tool used to define projects in terms of their deliverables while providing a method for breaking these deliverables into meaningful subsets. By defining projects in this way, the WBS enables project managers to clearly describe the hierarchical nature of the work to be performed and provides a consistent language or code to be used in other elements of formal project planning such as the resource plan, budget, organisational plan (OBS) and master schedule. The Project Management Institute (PMI) of the USA defines a Work Breakdown Structure (WBS) as: “A deliverable-orientated hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables. It organizes and defines the total scope of the project work. Each descending level represents an increasing detailed definition of the project work” (PMI 2004). An earlier definition of the WBS provided by PMI was the basis of Hillson’s definition of a project RBS. Hillson (2002) describes a risk breakdown structure (RBS) in the context of projects as: “A source orientated grouping of project risks that organizes and defines the total risk exposure

of the project. Each descending level represents an increasingly detailed definition of sources of risk to the project.” Early hierarchical structures were developed for software development (Dorofee *et al.* 1996), construction (Chapman 2001) and a high voltage transmission line (Tummala and Burchett 1999). Tummala and Burchett have produced specific RBS structures for different project types within the rail, pharmaceutical, heritage and construction sectors.

11.7.9 Risk questionnaire

A risk questionnaire aims to elicit through a series of questions issues that are unresolved, incomplete, give rise for concern, behind schedule, uncoordinated, appear to be in a rapid state of change, are uncertain and so on. The objective is to elicit as much information as possible while at the same time not deterring the recipients from responding. The questionnaire should be structured in a logical manner such as reflecting a project lifecycle, process map or a similar structure, which the recipients will immediately understand and be able to relate to.

11.7.10 Risk register content/structure

The value of a risk register is its ability to capture information in a consistent manner and to simplify communication. The layout of the register (reading from left to right) should reflect the sequence in which information is captured. For document management purposes the register should carry a title (reflecting the project or business activity), date, version number, author and file reference. The typical content of a risk register is recorded in Table 11.2.

11.8 PROCESS ACTIVITIES

The activities of the risk identification process are the tasks necessary to capture risks and uncertainty and record them in a risk register, log or list. These consist of:

- Clarifying and recording the business objectives or business objectives subset under examination. You cannot identify the risks to the objectives without knowing the objectives in the first instance. All very obvious but it is surprising how often the objectives are not clear or project team members have differing views on what the objectives are.
- Reviewing the business analysis (see previous chapter).
- Identifying the risks and opportunities to the objectives as comprehensively as possible using the information gained from the business analysis to act as prompts.
- Gaining a consensus on the risks and opportunities, their description, their interdependencies and how they would impact on the business.
- Documenting the risks and opportunities.

11.8.1 Clarifying the business objectives

At the outset of the risk identification process the business or activity objectives must be made clear, as the primary objective of the process is to identify the threats or opportunities to those objectives. Where objectives, deliverables and success criteria are stated they must be aligned. The deliverables and success criteria must spring directly from the objectives. Lists of objectives should not be a mixture of primary and secondary objectives.

Table 11.2 Typical contents of a risk register**Document control**

| | |
|------------------------|---|
| Title | Title of the register |
| Author of the register | Originator of the register and point of contact for any questions regarding the content |
| Date register compiled | Date of issue |
| Issue number | Unique issue number |
| File reference | The location at which document can be found on the server |

Register content

| | |
|------------------------|--|
| Risk identifier | Unique number to identify the risk |
| Risk category | Risk subject area |
| Risk description | Full description of the risk which will be readily understood by all of the business leaders (or project team) on completion of the identification process and 12 months later |
| Risk status | The commonly adopted descriptions are “Active”, “Closed” and “OBTE” (overtaken by events) |
| Probability | Assessment of how likely the risk is to happen. The probability can be recorded as a percentage, a category or both |
| Impact | Impact can be measured in terms of cost, duration, quality or any other business or project objective |
| Proximity | Reflects the timing of the threat of the risk. Is its threat strongest at a particular point in time? Does its probability or impact change over time? |
| Risk response category | The terms adopted here are reduce, retain, remove or transfer |
| Owner | Owner refers to business entity that will be affected by the risk should it materialise. For instance if the register is related to an investment decision such as a new office building the <i>owner</i> column would most probably be populated with “client”, “contractor”, “insurer” or “nominated supplier” |
| Manager | The individual responsible for agreeing and overseeing the implementation of the risk response action |
| Actionee | The individual responsible for implementing the risk response action under the direction of the risk manager |
| Risk response action | A description of the specific action or actions decided upon to address the identified risk to either remove, reduce or retain the risk |
| Expected value | This is calculated by multiplying the average impact by the probability percentage |

11.8.2 Reviewing the business analysis

This process activity will examine the findings from the business analysis described in the previous chapter. Depending on the study objectives, one or a combination of the following areas will be examined for sources of risk and/or opportunity:

- Business plan
- Market
- Change management
- Acquisition
- Regulatory compliance
- Resources

- Risk processes
- Value chain
- Financial ratios
- Audit Committee roles and responsibilities
- Process map

11.8.3 Risk and opportunity identification

The need for systematic risk and opportunity identification, as described in this risk management process, is predicated on the following assumptions:

- All business activities including change management, capital projects, acquisitions, counterparty contracts and supply chain management are exposed to risk.
- Business risks are generally known by management but are poorly communicated.
- A structured and repeatable method of risk identification is necessary for consistent and auditable risk management.
- Ad hoc approaches lead to “blind spots” and unidentified risks.
- A formal non-judgemental non-attributive environment is required to provide a setting whereby alternative or controversial views can be heard.
- The identification and existence of risk is not a criticism of management performance.
- Opportunity identification is as important as the identification of risks.

Risk identification can be conducted in a number of ways and is a facilitated process typically adopting one or a combination of the following: questionnaires (including the Delphi technique), interviews or interactive workshops using the brainstorming or the nominal group method. Risk and opportunity identification is commonly a group-oriented approach that draws on the combined knowledge and experience of the individuals selected to participate. Depending on the size of the business and the geographical dispersion of the business premises, identification may be carried out by e-mail, video conferences, meetings or through one-to-one interviews. Dangers to be avoided are where the identification process mirrors the structure of the organisation and the interdependencies between departments and hence between the risks are missed. This pattern can be reflected in risk management. While many firms have invested in enterprise risk management, they frequently view risk in silos, often leaving themselves blind to relationships between risks (Kambil *et al.* 2005). Kambil *et al.* suggest that the first essential step in gaining a comprehensive view of risk interdependencies is to build an integrated risk management function, championed and supported by senior management that sits above all divisions and departments. The purpose of this group being to identify the key risks across the corporation, understand the connections between them and develop a risk management strategy that takes into consideration the organisation’s appetite for risk. Kambil *et al.* cite the example of a large multinational bank, which integrates risk at the time strategies are developed, rather than planning for risk after a strategy has been established. Central to their approach is the examination of risks holistically, rather than in isolation. For instance when considering risks in the underwriting process, the bank assesses how its business strategy, sales practices and business development practices affect the risk profile.

Figure 11.6 illustrates one organisation’s view of the merits of the alternative approaches to risk identification. Circumstances, however, may dictate the approach to be adopted due to time, geographical or personnel constraints.

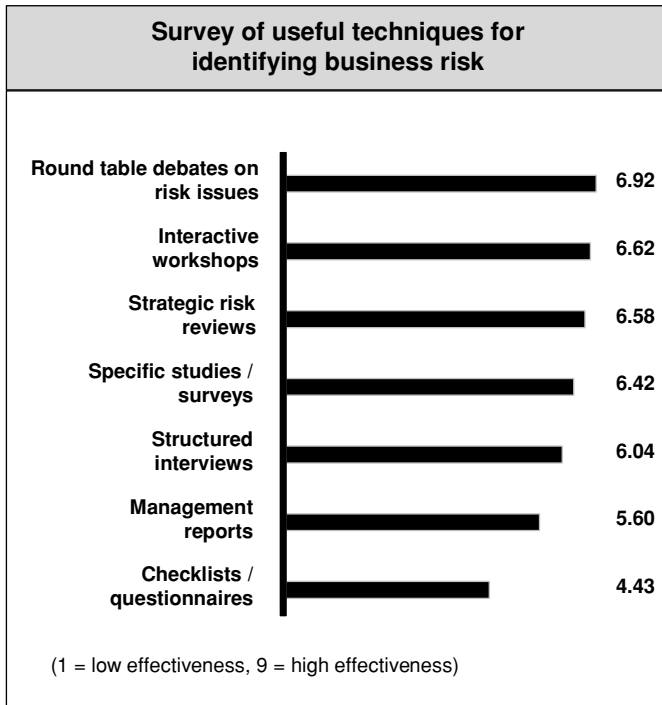


Figure 11.6 Techniques for identifying business risk. Source: Jones, Sutherland (1999).

Facilitation

The facilitator's role involves planning the means of eliciting and recording the risks to the business activity or project under examination and their assessment. It involves controlling and leading a team through a process using analytical, arbitration, guiding and influencing skills (Kelly *et al.* 2004). For ERM this entails recognising the constraints of the study and selecting the best technique for identifying risks and opportunities to suit the circumstances. For interactive workshops (and interviews), the responsibilities of the facilitator are therefore:

- **Timing:** Agreeing with the study sponsor the date and time of the workshop.
- **Physical environment:** Selecting an appropriate room which will comfortably accommodate the agreed number of attendees in an appropriate seating arrangement such as a horseshoe formation. The room should have appropriate fixtures and fittings such as blackout facilities, power outlets and pin-up space. Additionally, when required, the room should be furnished with a white wall, whiteboard or screen to accommodate the combined use of a notebook computer with a projector and/or flip charts. The room should be sufficiently remote from attendees' normal place of work that there is no possibility of interruption. For this reason hotel conference rooms are a common choice.
- **Arranging attendees to maximise an effective outcome:** Agreeing with the study sponsor the appropriate workshop attendees to ensure that the right skills and experience are present

to strive as far as possible to make the identification as broad as possible to avoid “blind spots”.

- *Producing an agenda:* A structured realistic agenda should be developed which is not over-ambitious, reflects the objectives of the workshop, includes appropriate breaks and examines the aspects of interest.
- *Preparing and forwarding a briefing pack:* The briefing pack should contain the time, date, location, purpose of the workshop, attendees, agenda, workshop rules, preparation required, risk management terms that will be used, status and background to the business activity or project, presentations, outputs and any other relevant information.
- *Managing the process of the workshop:*
 - stating the objective of the workshop at the outset;
 - gaining consensus to the workshop outputs;
 - “walking through” the agenda at the outset to give attendees a clear pattern of the intended course of events;
 - ensuring there is universal comprehension of the terms that will be used during the course of the workshop;
 - setting out the workshop rules such as all participants are equal, one person talks at a time, every idea is valid, no criticism or judging, no mobile phones and so on;
 - ensuring, where speakers have been requested to describe part of an activity or project to “set the scene”, they do not overrun their allotted time;
 - planning to ensure all appropriate skills or subject areas are represented;
 - providing direction and a common purpose;
 - bringing the discussion back to the core objectives, if discussion centres for too long on a detailed issue;
 - preventing individuals from having a discussion with neighbours;
 - maintaining momentum;
 - ensuring everyone agrees the conclusions, for example by stating that everything recorded on the notebook, flip chart, board or electronic display is a record of what is agreed;
 - being prepared to modify the content of the workshop if necessary;
 - ensuring that all attendees participate in the discussion;
 - looking out for dominant personalities who wish to impose their views and ensure all attendees engage in the discussion;
 - being attuned to differences in attendees’ hierarchical position within the company and how this reflects in the degree of responsiveness;
 - sensing interpersonal relationships within the attendees to avoid point scoring;
 - recording the risks and opportunities as they are identified and gaining a consensus to the descriptions in a way which will stand the test of time (in other words department heads will understand what was meant by the risk description three months later).

Facilitation is distinguishable from meeting chairmanship in that the facilitator is not normally a business employee or a member of the project team, contributes nothing more than facilitating skills and has no vote and certainly no casting vote in decision making. There are distinct advantages in not selecting a facilitator from a business function (or the business as a whole) as it avoids problems of bias, lack of independence, hidden agendas and distortion of focus to permit pursuit of personal or departmental goals. To accomplish the aims of facilitation it is common for the facilitator to adopt one of the three techniques described below, commencing with brainstorming.

Brainstorming

The brainstorming process, borrowed from business management and not specifically created for risk management, involves redefining the problem, generating ideas, finding possible solutions, developing selected feasible options and conducting evaluation (Chapman 1998b). Originated by Osborn (1963) in the early 1950s, brainstorming was proposed as a problem-solving method which would produce a much larger quantity of ideas in less time than existing group problem-solving techniques. In the third revised edition of his text entitled *Applied Imagination* originally issued in 1953, Osborn argues that the effectiveness of brainstorming is derived from two essential components. These components are succinctly described by Johnson (1972) as (1) group thinking is more productive than individual thinking and (2) the avoidance of criticism improves the production of ideas. In terms of the first component, Osborn explains that the generation of more ideas by group activity as opposed to individuals working on their own is the result of “free associations”. That is the generation of suggestions triggered by suggestions voiced by other group members, a process Osborn refers to as “social facilitation”. The second component is what psychologists recognise as “reinforcement” where “correct” answers are reinforced by “rewards” in the form of immediate corroboration. In terms of brainstorming, “reinforcement” is provided by “rewarding the suggestions with receptiveness, or suspending criticism”. Osborn states “deferment of judgement is the essence of group brainstorming”. Osborn argues that the creative “climate” of brainstorming is only achieved by strict adherence to the four rules of brainstorming which are recorded here:

- criticism is ruled out – evaluation of ideas must be withheld until later;
- “free-wheeling” is encouraged – “the wilder the idea the better”;
- quantity is wanted – the greater the number of ideas, the greater the chance of having useful ones;
- combination and improvement – try to “build” on other people’s ideas.

Nominal Group Technique

The Nominal Group Technique (NGT) was developed by Delbecq in 1968 (Delbecq 1968). It was derived from social-psychological studies of decision conferences, management science studies of aggregating group judgements and social work studies. Delbecq *et al.* (1975) describe the operation of the NGT method as commencing with the group members (between seven and ten) without discussion, writing ideas related to the problem down on a pad of paper. After five to ten minutes, each individual in turn briefly presents one of his or her ideas. These are recorded on a flip chart in full view of the group members. Round-robin listing continues until all members indicate that they have no more ideas. Discussion does not take place until all the ideas are recorded. Then each one is discussed. Finally each individual writes down their evaluation of the most serious risks, by rank ordering or rating. Then these are mathematically aggregated to yield a group decision. Delbecq *et al.* summarise the NGT decision-making process as follows:

- silent generation of ideas in writing;
- round-robin feedback from group members to record each idea in a short succinct phrase on a flip chart;
- discussion of each recorded idea for clarification and evaluation;
- individual voting to prioritise the ideas generated with the group decision being mathematically derived through rank ordering or rating.

Delphi technique

A less commonly used form of assessing expert opinion is the Delphi technique, originally developed by Dalkey, Helmer and others of the Rand Corporation primarily for technological forecasting, which has seen a wide variety of applications. It is a method for the systematic collection and collation of judgements from domain experts on a particular topic. These experts, who are required to work independently of each other, are requested to respond anonymously to a set of carefully designed sequential questionnaires. The second and any subsequent questionnaires are preceded by feedback in the form of summarised information assembled from earlier responses, with the aim of arriving at a consensus. Turoff (1970) suggests at least three separate groups of individuals are required to perform three different roles:

| | |
|--------------------|--|
| Decision maker(s) | The individual or individuals expecting data or results to use for their purposes (Client/Sponsor). |
| A “staff” group | The group which designs the initial questionnaire, summarises the data received and prepares the feedback information and subsequent follow-up questionnaires (the facilitator). |
| A respondent group | The group whose judgements are being sought and who are asked to respond to the questionnaire (leading business representatives). |

The basic principles of the multistage method are the elimination of direct social contact providing unattributed contributions, the provision of feedback and the opportunity for the revision of opinions. The participants are asked individually, usually by mailed questionnaires and more recently by e-mail, for their estimates concerning the variables under examination. These are then aggregated and summarised in such a way as to conceal the origin of the original estimates. The results are then circulated and participants are asked if they wish to revise their earlier forecasts. These rounds can continue until the estimates stabilise, though in practice no more than three questionnaires are issued.

Implementation

The examples below describe different identification methods adopted during risk management assignments as a result of constraints imposed by the client organisation. The constraints may vary considerably depending on the organisational culture and the degree to which risk management processes are embedded.

Example 1

The research and development arm of a major international pharmaceutical company wished to obtain internal investment approval for a research and development facility to be constructed in India. The decision was taken to conduct a risk analysis to determine a risk contingency based on the actual risks and uncertainty. The author undertook the analysis. Project personnel were located in India and two European countries. Due to the constraints of cost and time, in terms of bringing personnel together for a risk workshop, an alternative approach was selected. Risk identification and assessment was conducted by a combination of (1) an e-mailed questionnaire (structured as a gap analysis) to draw out the risks, (2) a draft risk register, based on the findings of the gap analysis to stimulate a review of the risks and (3) a video conference (between India and England) to gain consensus on the risk descriptions and their assessment. While the video conference saved travel time and cost, as a communication tool it had its shortcomings in terms

of the sound quality, the time delay and the inability to always see who you were talking to or who was talking. The time difference (between India and England) placed pressure on the time available for the video conference. Despite these difficulties a comprehensive risk register was produced. (In this instance the key risks identified were that the procurement route was not aligned to the project objectives, a formal business continuity plan had not been prepared and reflected in the design, the insurer's requirements had not be ascertained and reflected in the design and roles and responsibilities of the different client representatives had not been made explicit.)

Example 2

A Unitary Authority wished to understand the risks to its organisational change project, which had the laudable aims of improving its corporate working and CPA (Comprehensive Performance Assessment) rating, as assessed by the Audit Commission.³ The author undertook the risk study. Due to the nature of councils, the study was carried out in a political context which influenced the behaviour of officers. The study was commenced by examining the project documentation. The first task was to strive to understand the objectives of the change project and how these were aligned to both the deliverables and the success criteria. From the project documents, this was not readily discernible and information had to be prepared to compensate. A table of five columns was prepared with the column headings reading from left to right as follows: "objectives identification number", "objectives", "deliverables identification number", "deliverables" and "success criteria". This table was populated as far as possible and reviewed with and amended to reflect comments from the council. The table was then used to construct the risk register inasmuch as the project deliverables were included in the register so that risks could be identified against the deliverables and objectives.

Implementation of the study was constrained in a number of ways. Officers were in the unenviable position of operating in an environment where there was a tension between officers and members, between political parties and between members within the same party. In addition, the relationship with the local press was poor. It appeared that members were leaking information to the press to pursue their own ends and certain senior officers felt their position was vulnerable as a result of member behaviour. There was a genuine concern by certain officers that risks should not be identified against activities already completed, as this information could be used as "ammunition" by members against officers. Against this background access to officers was restricted, as multiple workshops planned were not permitted to take place. A single workshop was arranged with the project implementation group (which included officers, members and union representatives) to identify the risks to the deliverables. Prior to the workshop, a briefing pack was prepared and sent to the attendees, which explained the aim of the workshop, what aspects of the risk management process would and would not be undertaken in the workshop and the schedule of deliverables. In addition to the briefing pack, a draft register or "straw man" was prepared with a small number of officers and issued to stimulate thinking prior to the workshop. During the workshop, the draft register was used

³ The Audit Commission is an independent body responsible for ensuring that public money is spent economically, efficiently and effectively, to achieve high-quality local and national services to the public. The Commission, it states, is an independent watchdog providing practical recommendations for improvement and promulgating best practice. There are five categories or ratings of performance ranging from excellent, through good, fair and weak down to poor. Each rating under the CPA framework is derived by combining scores for: performance of each key council service; the council's overall performance as a service provider; and a score for the council's ability to lead its community and improve services.

to gain a consensus on the risks facing the project, including agreement to the wording of both previously identified risks and additional risks. The limited workshop duration and limited access to officers were clear constraints on the risk study. (In this instance the key risks identified were (in summary) that the planned improvements in project and risk management were slow to produce results, projects exceeded budgets, inadequate option appraisals, lessons learnt on capital projects not reflected in ongoing operations, corporate working not enabled and projected savings not realised.)

Example 3

A UK media company was preparing to enter into contract negotiations with a third party with regard to the provision of support services. The media company wished to make an informed decision about the terms of the contract to be entered into with regard to the balance of risk ownership between the two parties, their own degree of retained risk and the financial reward to be sought commensurate with the degree of retained risk. The author undertook the analysis. The company wished to look at alternative scenarios and their corresponding risk profiles. It was clear that the third party would wish to impose financial penalties on the media company if performance fell below pre-agreed levels of service. Over a single year the potential penalties aggregated together could exceed several million pounds. Losses would be calculated monthly and paid out yearly. The risk analysis was problematical from six main perspectives: (1) gaining initial agreement to the focus of the risk management study, (2) the amount of time allocated to the study, (3) the amount of time media company representatives could devote to participating in the study due to ongoing commitments, (4) the timing of the study as the media company was going through significant organisational change, (5) lack of clarity over the ownership of the assets to be managed as part of any contract and (6) the amount of information available regarding the services to be offered by the media company and the associated penalties. (In this instance the key issues that the study highlighted were: the likely legal costs in administering a contract which involved a detailed penalty regime, the high level of excess currently paid on insurance (and hence the limited protection it offered), the possibility of the UK media company being paid on a cost and margin basis rather than a penalty regime with both parties sharing the risk, the services required could vary significantly year by year and lastly, if back-to-back arrangements were required by the third party (to pass on their own risks), significant contract drafting would be required.)

11.8.4 Gaining a consensus on the risks, the opportunities and their interdependencies

To be able to assign risks to risk owners and managers downstream in the risk management process, it is important to have a consensus and a buy-in to the risks and opportunities, their descriptions and the interdependencies.

11.8.5 Risk register

The risk register is populated with the findings of the process activity. The typical content of a register was discussed in Section 11.7.10 above. Its usefulness will depend on whether it is placed on a shelf to collect dust or is used as a proactive tool to manage the business.

11.9 SUMMARY

This chapter examined the risk identification process using the IDEFO process mapping technique to understand the inputs, outputs, the constraints which might inhibit conducting identification and the mechanisms that will support it. The primary process goal was described in terms of identifying both risks and opportunities and the subgoals were good practice steps to enhance the overall identification process. The inputs were described as: assumptions, uncertain events, lessons learnt, issues, business analysis, a business plan and a business process map. The risk identification process is a key foundation stone in the overall process of risk management, for risks not identified will not be managed. The mechanisms are used to attempt to avoid blind spots so that the identification process is as thorough and comprehensive as possible.

11.10 REFERENCES

- APM (1997) *Project Risk Analysis and Management Guide*, edited by Simon, P., Hillson, D., and Newland, K., published by the APM Group Limited, on behalf of the Association for Project Management.
- APM (2004) *Project Risk Analysis and Management Guide*, second edition, APM Publishing Limited, Buckinghamshire.
- BSI PD 6668 (2000) *Managing Risk for Corporate Governance*, 2001 reprint, British Standards Institute, London, UK, p. 19.
- Carr, M.J., Konda, S.L., Monarch, I., Ulrich, F.C., and Walker, C.F. (1993) *Taxonomy-Based Risk Identification*, Software Engineering Institute, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA, Technical Report, CMU/SEI-93-TR-6 ESC-TR-93-183, June 1993.
- Chapman, R.J. (1998a) "An Investigation of the Risk of Changes to Key Project Personnel during the Design Stage", Department of Construction Management & Engineering, Faculty of Urban and Regional Studies, University of Reading, unpublished doctoral thesis.
- Chapman, R.J. (1998b) "The Effectiveness of Working Group Risk Identification and Assessment Techniques", *International Journal of Project Management*, Vol. 16, No. 6, 333–343, Elsevier Science Limited.
- Chapman, R.J. (2001) "The Controlling Influences on Effective Risk Identification and Assessment for Construction Design Management", *International Journal of Project Management*, Elsevier Science Ltd and IPMA, 147–160.
- Cooper, B. (2004) *The ICSA Handbook of Good Boardroom Practice*, ICSA Publishing Limited, London.
- Day, A.L. (2001) *Mastering Financial Modelling, a Practitioner's Guide to Applied Corporate Finance*, Pearson Education Limited, London UK, p. 219.
- Delbecq, A.L. (1968) *The World within the Span of Control, Managerial Behaviour in Groups of Varied Size*, Business Horizons.
- Delbecq, A.L. Van de Ven, A.H., and Gustafson, D.H. (1975) *Group Techniques for Programme Planning*, Glenview Scott Foresman.
- Dorofee, A.J., Walker, J.A., Alberts, C.J., Higuera, R.P., Murphy, R.L., and Williams, R.C. (1996) *Continuous Risk Management Guidebook*, Carnegie Mellon University Software Engineering Institute.
- Hillson, D. (2002) *Use a Risk Breakdown Structure (RBS) to Understand your Risks*, Proceedings of the Project Management Institute Annual Seminars & Symposium, San Antonio, Texas, USA, 3–10 October.
- HM Treasury (2001) *The Orange Book, Management of Risk, a Strategic Overview*, HM Treasury, London.
- HM Treasury (2004) *The Orange Book*, revised edition, *Management of Risk, Principles and Concepts*, May 2004, Consultation draft, HM Treasury Assurance, Control + Risk Team, London.
- Holliwell, J. (1998) *The Financial Risk Manual, a Systematic Guide to Identifying and Managing Financial Risk*, Pearson Education Limited, UK.
- Johnson, D.M. (1972) *Systematic Introduction to the Psychology of Thinking*, Harper and Row, New York.

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- Jones, E.M. and Sutherland, G. (1999) *Implementing Turnball, a Boardroom Briefing*, Centre for Business Performance, The Institute of Chartered Accountants in England and Wales, September, London.
- Kambil, A., Layton, M., and Funston, R. (2005) "It is Critical to Model and Manage Interdependencies between Risks", *Strategic Risk*, Newsquest Specialist Media Ltd, London, June.
- Kelly, J., Male, S., and Drummond, G.D. (2004) *Value Management of Construction Projects*, Blackwell Science Limited.
- Osborn, A.F. (1963) *Applied Imagination. Principles and Procedures of Creative Problem Solving*, third revised edition, fourteenth printing. Charles Scribner's Sons, New York.
- PMI (2004) *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, third edition, PA, USA.
- Tummala, V.M.R. and Burchett J.F. (1999) "Applying a Risk Management Process (RMP) to Manage Cost Risk for an EHV Transmission Line Project", *International Journal of Project Management*, 17(4), 223–235.
- Turoff, M. (1970) "The Design of a Policy Delphi", *Technological Forecasting and Social Change*, 2.

Risk Assessment: Stage 3

The previous chapter examined risk identification. This chapter examines the risk assessment stage. The purpose of the risk assessment stage is to provide a judgement of the likelihood and impact of the risks and opportunities identified, should they materialise. The benefits of undertaking this activity are that assessment provides an order of pain or gain for each risk and opportunity respectively. I use the words “an order of” as quantitative analysis is not a precise science as it is based on subjective estimates. While some question the merit of quantitative analysis as a result of this subjectivity, it makes sense to articulate these perceptions of likelihood and impact in order to aid decision making. Even when there is considerable uncertainty about the business outlook, quantitative techniques provide a framework for thinking about the problems. Decision making becomes much “tighter” as soon as the risks are quantified, no matter how vaguely. Risk management leads to rational, defensible decisions. Without risk assessment:

- how is a preferred option to be selected from a number of possible solutions?
- how is risk management activity to be prioritised?
- how is a manager to judge whether it is more economic to retain a risk or transfer it to a counterparty?
- how is a manager to judge whether to enter a new market?
- how is a business to decide if it wishes to increase market share through acquisition?

The structure of this chapter is reflected in Figure 12.1. The following chapter examines the assessment of risks and opportunities in combination.

12.1 PROCESS

As described in the preceding chapter, adopting the philosophy of process mapping, each process exists to make a contribution to one or more business enterprise goals. Hence each process should be measured against specific process goals that reflect the contribution that the process is expected to make to the overall enterprise goals. Processes are simpler to comprehend when they have a primary goal and subgoals. Hence risk assessment is described here as having a primary process goal which is accomplished by a series of what have been termed subgoals, as described below. Any one process is accomplished within a context and might be considered to have two perspectives. The *external view* examines the process inputs, outputs, controls and mechanisms. The *internal view* examines the process activities that transform inputs to outputs using the mechanisms.

12.2 PROCESS GOALS AND SUBGOALS

The primary process goal of “risk assessment” is to assess both the *risks* and the *opportunities* to the business, in terms of their probability and impact.

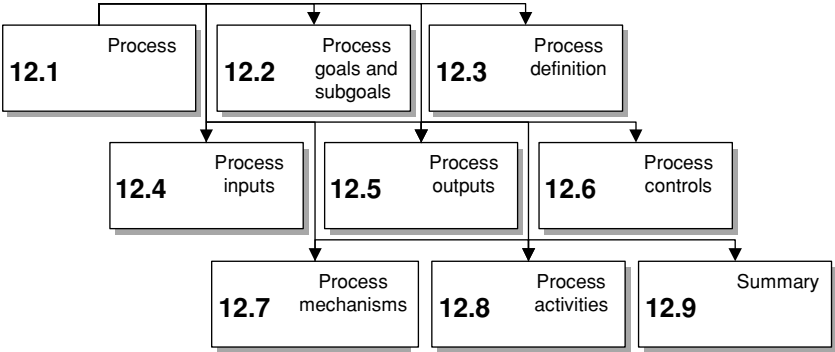


Figure 12.1 Structure of Chapter 12

The risk assessment process is sufficient when it satisfies these subgoals:

- The risk assessment process was comprehensive and included, as far as possible, an assessment of all of the risks in the risk register developed in the “identify risk” stage.
- Personnel were involved who could make an informed and well-reasoned assessment of the risks.
- Sufficient time was allocated to the assessment process.
- Consistent definitions of probability and impact were adopted.
- The assessment was supported by risk management expertise.
- Where a probability impact matrix was used, the financial banding adopted for each risk was appropriate and not too broad or open-ended (in terms of the upper band).

12.3 PROCESS DEFINITION

The risk assessment process is described by an IDEFO¹ diagram, see Figure 12.2. The diagram describes a process with inputs entering on the left of the box, outputs leaving on the right of the box, controls entering from above and mechanisms or enablers entering from below.

12.4 PROCESS INPUTS

The inputs to the assessment process will be dictated by the risk study parameters. They may include the risk register, profit and loss account, balance sheet and industry betas.

- *Risk identification:* During the previous risk management stage, “identification”, the risks will have been discussed and captured in the risk register.
- *Risk register:* The risk register is an output of the proceeding process which at this stage should contain as a minimum a full description of the risks and the risk categories. Each risk should be assigned a unique reference number. The risks should be listed under the risk category to which they relate. Additionally, where possible the risk owner and risk manager should be identified. If considered helpful the register can include additional columns like

¹ Integration Definition for Function Modelling.

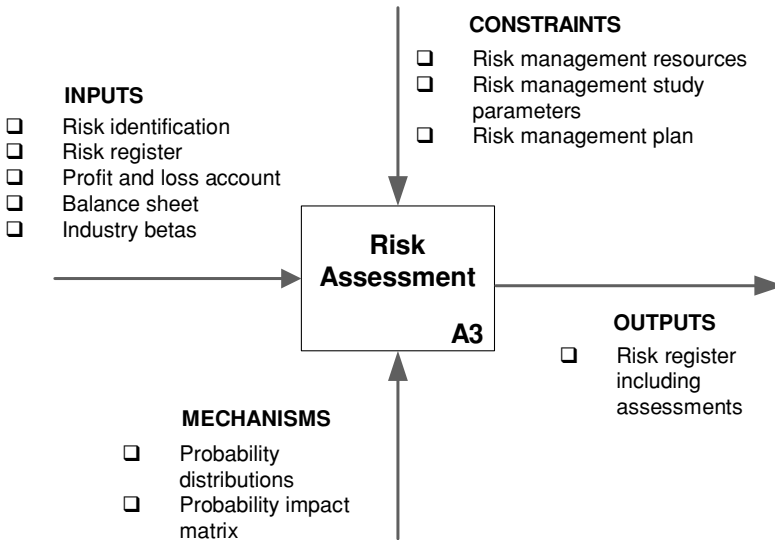


Figure 12.2 Risk assessment process

a notes column to provide background information to the risk and a column headed impact, so that the impact on the business of each individual risk can be described.

- *Profit and loss account:* The projected profit and loss account was discussed in Chapter 10. This account provides information on the expected levels of profit for a particular period. Low levels of projected profit will expose a business to a series of related risks in terms of operating practicalities and business longevity.
- *Balance sheet:* Likewise the projected balance sheet was discussed in Chapter 10. This statement should be critically examined to establish the reliability of the projections with regard to the validity of the underlying assumptions and whether the input data was comprehensive. The balance sheet will provide an indication of the vulnerability of a business to late payments or bad debts, for instance.
- *Industry betas:* The non-diversifiable risk element for a particular share can be measured using *beta*. This is a measure of the non-diversifiable risk of the share in relation to the market as a whole. A risky share is one that experiences greater fluctuations with movements in the market as a whole and therefore has a high beta value. It follows that the expected returns for such a share should be greater than the average returns of the market. Atrill (2000) offers a method of calculating the required rate of return for investors for a particular share as follows:

$$K_O = K_{RF} + b(K_m - K_{RF})$$

Where:

- K_O = the required return for investors for a particular share
- K_{RF} = the risk-free rate on government securities
- b = beta of the particular share
- K_m = the expected returns to the market for the next period
- $(K_m - K_{RF})$ = the expected market average risk premium for the next period

A share which moves in perfect step with the market will have a beta measure of 1.0. A share that is only half as volatile as the market will have a beta of 0.5, and a share which is twice as volatile as the market will have a beta of 2.0. Past experience suggests that most shares have a beta which is fairly close to the market measure of 1.0. Betas are normally measured using regression analysis on past data.

12.5 PROCESS OUTPUTS

- *Risk register including assessments.* The risk register is updated to include the probability and impact of each risk and opportunity. It is common for a column to be added on the register headed “justification”, to provide a permanent record of the rationale behind the probability and impact selected, to afford the ability to respond to questions at a later date. The very least that is required is to be able to distinguish between those events that will have a minor impact on a business activity or project and those that will have a major impact. For financial institutions this activity will involve the assessment of losses against commonly recognised sources of exposure.

12.6 PROCESS CONTROLS (CONSTRAINTS)

The business risk management culture, risk management resources, the risk management study and the risk management plan (where one exists) regulate the risk identification process. These controls were discussed previously in Section 10.6.

12.7 PROCESS MECHANISMS (ENABLERS)

12.7.1 Probability

Assessing the likelihood of a risk or opportunity occurring requires an understanding of probability. Probability is expressed on a sliding scale from 0 to 1. If there is no chance of an event happening, it has a probability of zero. If it must occur, it has a probability of one. The simplest way to describe this is that an unbiased coin can land on a flat surface in one of only two ways. There is a 50% chance of either. Hence there is a 0.5 probability of a head and a 0.5 probability of a tail. If four businesses are equally likely to be selected for a contract, there is a 1 in 4, or 25% chance that any one will be selected. Hence they each have a 0.25 probability of success. Certainty = 1. It is important to understand that an unavoidable event has a probability of 1. By looking at the coin example, there is a 0.5 probability of a tail and 0.5 probability of a head. One of these two events must happen, so the probabilities must add up to one. If the probability of something happening is known, then by definition the probability of it not happening is also known. This is an important concept to be aware of when constructing decision trees. Logic, objective, and subjective probability, together with probability relationships (including Bayes’ theorem) are described in Appendix 14. This appendix forms a source of reference, when a deeper understanding of probability is required.

- *Probability distributions:* The probability distributions, commonly selected where there is very little data to model, are the Rectangular/Uniform and Triang distributions. Where

historical data is available it may be possible to use the Normal, Binomial and/or Poisson distributions. There are many more distributions to select from, however, their use will be dictated by the circumstances.

- **Probability impact matrix:** The very least that is required of risk assessment is to be able to distinguish between those risks that will have a minor impact on business activities and those that will have a major impact. For financial institutions this activity will involve assessment of losses against commonly recognised risks.

Example

An example of a probability impact matrix is included in Figure 12.3. The matrix has five levels of severity from very low through to very high. Opinion varies on the most appropriate number of levels. Too few levels and there is insufficient granularity to differentiate the probability and impact of different risks. Too many levels and participants in the assessment process lose patience and/or interest as they have insufficient information to support the selection of one scale over another. This matrix was used on a risk assignment conducted by the author. The project was the refurbishment of existing rolling stock undertaken by a Rolling Stock Company (ROSCO) in conjunction with a Train Operating Company (TOC). The matrix was used as part of the assessment process to aid project team members to assign a probability of occurrence (expressed as a percentage) and a cost and time impact for each of the identified risks. The matrix was not used rigidly. In other words if the cost impact of a risk was considered to be medium, the financial impact did not have to lie between £250k and £500k. The figures were a guide only. Values were selected to reflect the individual nature of a risk and so an impact may have ranged between £250k and £550k. The assessments made were defined as pre-mitigation

| | Probability | Cost £ | Time | Brief |
|-----------|-------------|-----------|---------|------------------------------------|
| Very high | >70% | > 1m | > 8 wks | Major shortfall in the brief |
| High | 50%–70% | 500k–1m | 6–8 wks | Significant shortfall in the brief |
| Medium | 30%–50% | 250k–500k | 4–6 wks | Shortfall in the brief |
| Low | 10%–30% | 10k–250k | 2–4 wks | Major specification issue |
| Very low | <10% | <10k | < 2 wks | Minor specification issue |

Figure 12.3 Quantitative probability impact matrix

assessments. In other words if no risk response action was taken and the risks materialised, these would be the impacts on the project.

12.8 PROCESS ACTIVITIES

The activities of the risk assessment process are the tasks necessary to capture the likelihood of the risk occurring and its impact should it materialise and record them in a risk register, log or list. These consist of:

- Understanding and assessing the likelihood or probability of the risk or opportunity arising.
- Assessing the impact of the risk or opportunity in terms of the business or project objectives.
- Understanding and taking account of the interdependencies between the risks. Would they occur sequentially (i.e. one risk potentially triggers another risk) or happen concurrently (i.e. in parallel).
- Documenting the findings.
- Updating the risk register, log or list.

12.8.1 Causal analysis

Causal analysis shows the relation between an effect and its possible causes, to get to the root cause of a risk. Its purpose is to prevent problems by determining the problem's root cause. The premise behind causal analysis is that if an error (or risk) has occurred it may happen again unless something is done to stop it. Hence, learning from past errors prevents future errors. Among the techniques of causal analysis is the cause-and-effect diagram. It does not have a statistical basis but is excellent for uncovering the sources of risk and mapping their relationships. This diagram is also sometimes called a fishbone diagram (as its appearance resembles the skeleton of a fish) or an Ishikawa diagram (after its inventor, Professor Kaoru Ishikawa²). The tool can produce a quick identification of major causes, usually indicates the most fruitful areas for further investigation and it always leads to a better understanding of the problem. It explores the relationship between the problem and its causes (by category) visually. It is commonly developed in a brainstorming session. Its appeal stems from its simplicity and its adaptability. It allows the group or individual to broaden their thinking about potential or real causes of the problem, and it then facilitates further analysis and examination of these causes. The diagram is commenced by writing on the far side of the diagram, the potential effect, and drawing a long horizontal arrow pointing towards it (see Figure 12.4).



Figure 12.4 Cause and effect

From the horizontal arrow, the major risk events are created as branches off the spine and labelled. These will form the main “bones” attached to the “backbone arrow”. They are added

² Ishikawa, formerly of Tokyo University, was a management leader who made significant and specific advancements in quality improvement and pioneered the Quality Circle movement in Japan during the 1960s. He first used the cause and effect tool in 1943.

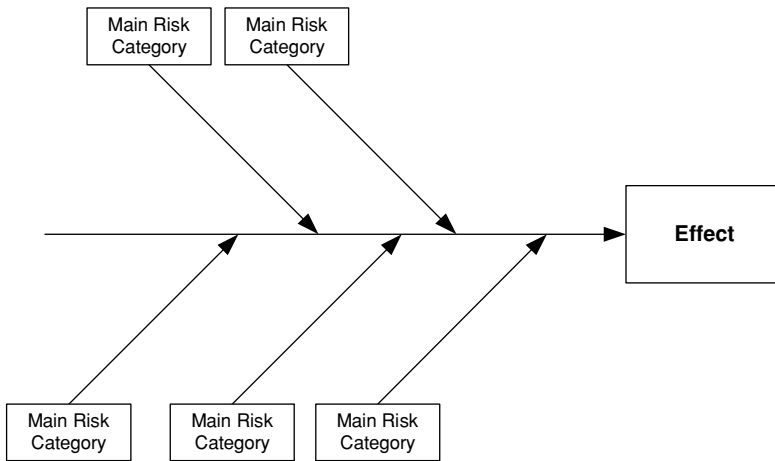


Figure 12.5 Main causes of effect

incrementally and it is common to start with just a few. Brainstorming is continued until about six to eight main categories are defined. It does not have to be an even number (Figure 12.5).

Having decided on the main categories, a group can continue to brainstorm in more detail, and capture the contributory causes to the main categories, described as level 1 and level 2 causes as illustrated in Figure 12.6. It is best to expand the diagram as far as possible so that no potential root cause is overlooked.

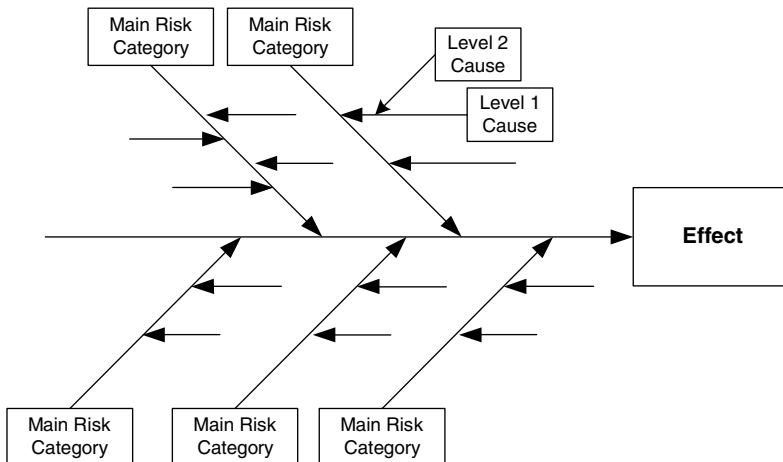


Figure 12.6 Main, level 1 and level 2 causes

Example

The example in Figure 12.7 was produced by the author for a petrochemical company wishing to invest in support facilities for oil and gas exploration in Russia. Level 2 causes were excluded from the diagram, for ease of assimilation by the audience.

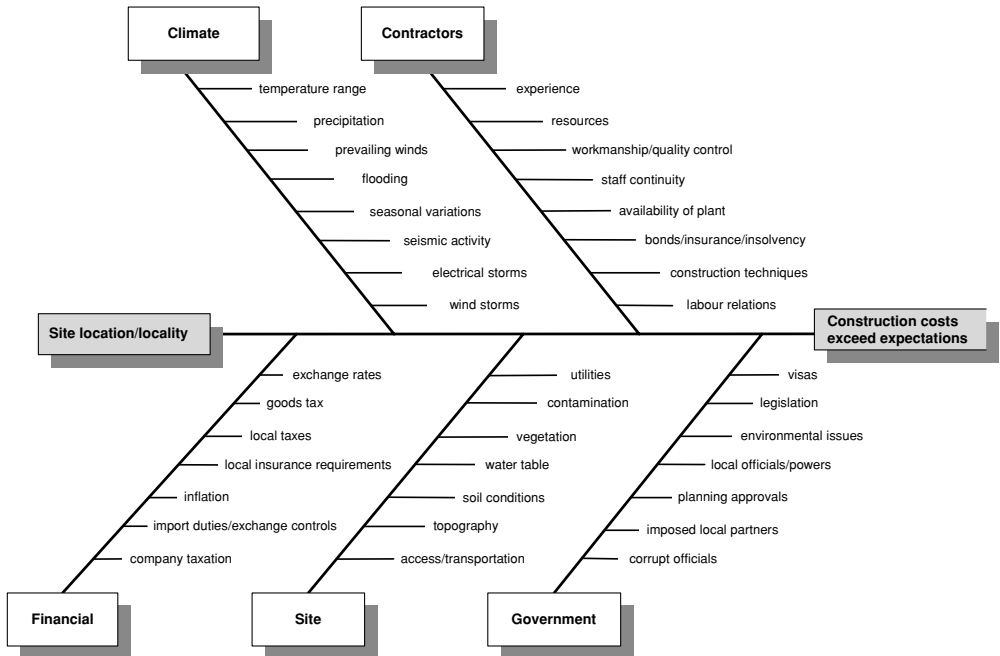


Figure 12.7 Cause and effect diagram for a petrochemical company

12.8.2 Decision analysis

Decision analysis is used to structure decisions and to represent real-world problems by models that can be analysed to gain insight and understanding. The elements of a decision model are the decisions, uncertain events and values of outcomes. Once the elements of the decision have been identified, a model can be constructed using the influence diagram technique. An influence diagram is a graphic representation of a model and is used to assist in model design, development and understanding. An influence diagram provides visual communication to the model builder or development team. It also serves as a framework for expressing the exact nature of the relationship of the variables. The term influence refers to the dependency of a variable on the level of another variable. As with all modelling techniques an influence diagram provides a snapshot of the decision environment at one point in time. Influence diagrams are an attempt to incorporate decisions as well as chance events into a single diagram which is easy to understand. They can represent the value or likely utility of pursuing a given course of action. These diagrams are designed to deliberately provide as simple a model as possible of a decision process which contains uncertainties, so that management can understand the process involved and, if necessary, alter the model to more accurately reflect the management process that takes place. The influence diagram is also formal and can be transformed into an equivalent decision tree and evaluated. A common notation is used:

- Squares represent decision nodes.
- Circles represent chance or uncertain events.
- Diamonds represent values.
- Double circles represent outcomes known when the inputs are given.

- Arcs (arrows) represent influences between variables. The direction of an arc is vital, as the arc specifies that the value of the node at its head (arrow end) depends directly on the value of the node at its tail.

The advantages of influence diagrams are that (1) they provide a framework in which experts and decision makers can discuss the interdependencies of decisions and events and the management of the problem, without requiring any formal mathematical, probabilistic, or statistical notation, (2) they provide a significant contribution towards reducing large volumes of data to those parts that are essential to the decision-making process, and (3) they can provide a degree of sensitivity analysis to show how much particular decisions or uncertain events have upon the final outcomes.

The rapid development of the computer technology has led to increasingly more powerful and inexpensive computer systems. As a consequence it has made the computer an easily accessible tool for decision making and the construction of influence diagrams. However, while current decision analysis software has succeeded in constructing and evaluating influence diagrams, the software requires the user to have a certain amount of knowledge in the area of influence diagrams to formulate the decision problem accurately.

12.8.3 Pareto analysis

Pareto analysis is used to focus management effort on those risks that have the potential to have the greatest detrimental impact on a project or a business's objectives. Pareto analysis is the expression given to the simple process of ranking or ordering risks once they have been assessed, to determine the order in which they should be managed. The Office of Government Commerce (2003) states "it is important to focus on the most important risks – follow the Pareto principle of placing emphasis on and allocating resources to the significant few rather than the insignificant many". Once the risks have been ranked they can be represented pictorially by a bar chart. When the bars are arranged in descending order of height from left to right with the most frequently occurring cause appearing first, the bar graph is called a Pareto diagram (Department of Trade and Industry 2000). Microsoft Excel includes a Pareto function for formatting histograms, which enables data to be presented in an output table in descending order of frequency. Commonly Pareto diagrams reveal that 20% of the risks within an analysis contribute some 80% of the overall risk exposure/impact, following the Pareto principle or 80/20 rule, as it is known. The originator of the 80/20 rule was Vilfredo Pareto (1848–1923), an Italian economist who observed an unequal distribution of the nation's wealth and power in a relatively small proportion of the total population. The 80/20 rule has subsequently been found true for a host of issues outside of economics and its principle was suggested by quality management pioneer, Dr Joseph Juran. Working in the US in the 1930s and 1940s, he recognised a universal principle he called the "vital few and trivial many" which built on the work of Pareto. Pareto Pro supplied by SigmaXL is an add-in to Microsoft Excel, which is one example of available software that enables Pareto diagrams to be produced.

The Pareto principle can be used in a wide variety of problem-solving and continual improvement activities. Here are some examples:

- 80% of an equipment budget comes from 20% of the items
- 80% of benefit comes from the first 20% of effort
- 80% of complaints are about the same 20% of your services
- 80% of the decisions made in meetings come from 20% of the meeting time

80% of innovation comes from 20% of the staff
80% of success comes from 20% of the business efforts
20% of advertising yields 80% of the campaign results
20% of customers account for 80% of sales volume

By combining EMV calculations with a Pareto diagram, risk significance can be readily communicated to the business team involved in the risk analysis.

12.8.4 CAPM analysis

The capital asset pricing model (CAPM) relates the expected return on an asset to its risk, while giving a precise definition of what we mean by risk. The key aspect of the CAPM is that investors can expect a reward for investing in an asset with a high-risk profile. There can be no expected reward for exposure to risks that can be easily diversified away. The required rate of return should be higher for investments that have a larger element of non-diversifiable risk otherwise there would be no incentive to invest in assets other than those providing a modest return.

An investor holding shares in a holding is exposed to equity market risk. There is a tendency for the value of the share to move with general stock market movements. In the CAPM, market risk is measured by its beta. A stock with a beta of 1.0 tends to move broadly in line with the equity market; a share with a beta of 1.5 tends to move up or down by 1.5% for each percentage point movement in the market. In the past the Lloyds TSB Group has had a beta of just under 1.5% and Cadbury Schweppes had a beta of just over 0.5%.³ Some companies have a beta over 1.5%. If the market goes up these shares can be expected to outperform others; in a bear market they can be expected to fall by more than average. Other shares have betas of 0.5 or less and these defensive companies are likely to do relatively well in a bear market while being left behind when the share prices surge ahead.

Required rates of return

To estimate the required rate of return for an investment, it is important to know the beta for the capital project. This is essentially easy to do if the project essentially replicates, probably on a smaller scale, the existing business of the company. It is also easy if the project is typical of an industry sector for which betas are published. A capital project with a beta of 0 would be riskless and its cash flows should be discounted at the risk-free rate of interest. An investment in an equity index fund would have the same risk as the market, namely a beta of 1.0. This investment would have a required rate of return equal to the riskless rate of interest plus the expected equity market risk premium.

In general the CAPM tells us that the required rate of return on an investment is equal to the risk-free rate of interest *plus* a premium for risk. The premium for risk is equal to beta multiplied by the equity market risk premium. To use the CAPM to calculate the required rate of return, three items of data are required: the risk-free interest rate (which may be obtained from the Currencies and Money page of the *Financial Times*), the beta of the project (which may be estimated using the RMS) and the equity market risk premium which historically has averaged around 8%.

³ Source: London Business School, *Risk Management Service*, 2001. The *Risk Management Service* (RMS) is a quarterly publication designed for use by investment professionals and corporate executives. Beta values quoted were drawn from the RMS web page.

12.8.5 Define risk evaluation categories and values

The process activities for the Risk Assessment stage involve assessing the risks identified in the previous Identification stage using subjective judgements, combined with historical data when it is available. This can be qualitative or quantitative. Qualitative assessments describe the size of the impact of a risk, whether this is in terms of, say, time or cost, simply with the aid of categories such as “High”, “Medium” or “Low”. Where more granulation is required, the categories can be extended to “Very High”, “High”, “Medium”, “Low” or “Very Low”. Quantitative assessments provide numeric assessments of, say, a financial or time risk. A probability impact grid, as described above, may be used to provide a scale for these numeric impact assessments. Quantitative assessments are more reliable when historical data is available. The objective of assessing the risks by whatever method is to ensure that management action is prioritised to respond to the most serious risks first. The purpose of using quantitative assessments (numeric) is so that the true likely outturn cost or duration of a business activity is used by decision makers, rather than basing decisions on information which takes no account of uncertainty and risk.

12.9 SUMMARY

This chapter examined the implementation of the Assessment process (the third stage in the overall risk management process), which builds on the information gained in the preceding stages. It examined the inputs and outputs to the Assessment process together with the constraints and enablers, which modified the process. As assessment includes the assignment of probabilities to anticipated events (risks), the process mechanisms included, examination of probability including logic, objective and subjective probabilities, relationships of probability, conditional probability and Bayes’ theorem. The process activities looked at causal analysis, analysis, Pareto and CAPM analysis. There is no exact science to the assignment of probabilities and impact assessments for embryonic business organisations where historic data does not exist, unlike the insurance industry for instance where historical records provide strong guidance on the assessments to adopt.

12.10 REFERENCES

- Atrill, P. (2000) *Financial Management for Non-specialists*, second edition, Pearson Education Limited, Harlow, England, p. 259.
- Department of Trade and Industry (2000) *Tools and Techniques for Process Improvement*, published on the DTI ‘From Quality to Excellence’ website: <http://www.dti.gov.uk/quality/pdfs/sections/tools.pdf>, prepared by Professor John Oakland from the European Centre of Business Excellence.
- Office of Government Commerce (2003) *PFI Material, Appendix B, Frequently Asked Questions and Common Problems*, published on the OGC website: http://www.ogc.gov.uk/sdtoolkit/reference/ogc_library.

The previous chapter examined risk assessment and the assigning of probabilities and impacts to risks and opportunities. This chapter examines the risk evaluation stage within the overall risk management process and as its name suggests, involves evaluation of the results of the assessment stage. This stage is central to the understanding of the likely risk exposure or potential opportunity arising from a business activity. It involves the important step of understanding what the relationship is between the individual risks and opportunities so that when they are combined together their true net effect is portrayed. When the results are obtained from the first set of calculations (“first pass”), questions are likely to be raised about the inputs and so it is highly probable that it will be necessary to revisit the previous process. In this way development of the evaluation process is an iterative process of challenge and refinement of the information captured during the assessment process and its input into the evaluation process. The structure of this chapter is described in Figure 13.1. The next chapter examines the process of risk planning to determine the approach to be adopted to respond to the risks and opportunities identified, assessed and evaluated.

13.1 PROCESS

As described in the preceding chapters, adopting the philosophy of process mapping, each process exists to make a contribution to one or more business enterprise goals. Hence each process should be measured against specific process goals that reflect the contribution that the process is expected to make to the overall enterprise goals. Processes are simpler to comprehend when they have a primary goals and subgoals. Hence risk evaluation is described here as having a primary process goal which is accomplished by a series of what have been termed subgoals, as described below. As described in previous chapters, any one process is accomplished within a context and might be considered to have two perspectives. The *external view* examines the process inputs, outputs, controls and mechanisms. The *internal view* examines the process activities that transform inputs to outputs using the mechanisms.

13.2 PROCESS GOALS AND SUBGOALS

The primary process goal of “risk evaluation” is to assess both the *risks* and *opportunities* to the business, in terms of their aggregated impact, on either the business as a whole, or specific projects. The risk evaluation process will be sufficient when it has satisfied these subgoals:

- The aim of the aggregation process had been made explicit.
- The limitations (if any) of the aggregation process were recorded and stated alongside the results.
- Personnel were involved who could make an informed and well-reasoned assessment of the relationship between the risks.
- Sufficient time was allocated to the evaluation process.

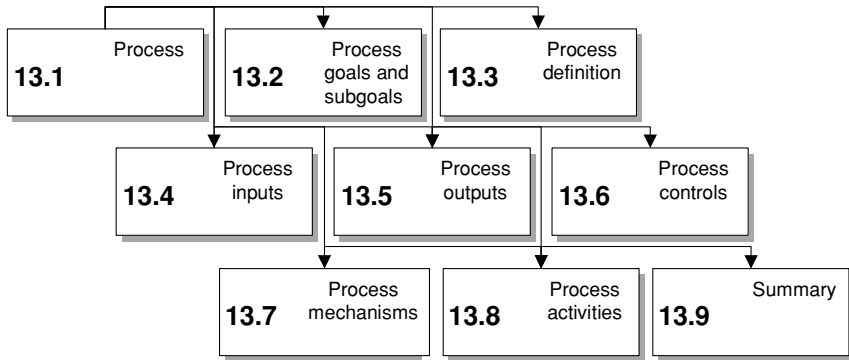


Figure 13.1 Structure of Chapter 13

- A recognised and well-used method of aggregation was adopted.
- The evaluation was supported by risk management expertise.
- Assumptions in the evaluation process were made explicit.
- Sensitivity analysis could be conducted on the results. That is a model that can be rerun to conduct a what-if analysis to see what the outcome would be if any particular figure is changed.

13.3 PROCESS DEFINITION

The risk evaluation process is described by an IDEFO¹ diagram, see Figure 13.2. The diagram describes a process with inputs entering on the left of the box, outputs leaving on the right of the box, controls entering from above and mechanisms or enablers entering from below.

13.4 PROCESS INPUTS

- *Risk register*: The risk register is an output of the preceding process, “Risk Assessment”. From the “Risk Identification” process the risk register will as a minimum contain a full description of the risks and the risk categories. Each risk will have been assigned a unique reference number. The risks should have been listed under the risk category to which they relate. Additionally, where possible the risk owner and risk manager will have been identified. If considered helpful additional columns like a notes columns will have been added to provide background information to each risk. From the ‘Risk Estimation’ process the impacts and probabilities will have been added.

13.5 PROCESS OUTPUTS

The outputs will be dictated by the objectives of the evaluation process, the mechanisms used and the data collected. Outputs commonly consist of a combination of the following:

- Investment model results
- Decision support framework such as a completed decision tree (of hedging strategies, investment options)
- Quantitative schedule risk analysis results

¹ *Integration Definition for Function Modelling.*

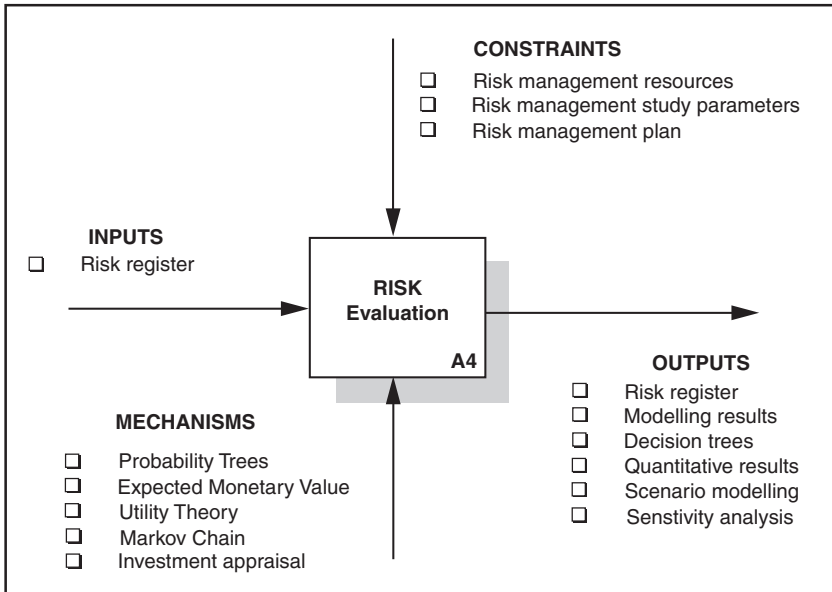


Figure 13.2 Risk evaluation process

- Quantitative cost risk analysis results
- Sensitivity analysis
- Scenario modelling
- Revised risk register

The outputs will, in many instances, be accompanied by explanatory text to describe:

- The objectives of the study
- The background to the study
- The participants
- The inputs
- The process adopted to derive the findings
- The findings
- Recommendations for further action
- Terminology used

13.6 PROCESS CONTROLS (CONSTRAINTS)

The business risk management culture, risk management resources, the risk management study and the risk management plan (where one exists) regulate the risk identification process. These controls were discussed previously in Section 10.6.

13.7 PROCESS MECHANISMS (ENABLERS)

There are a series of mechanisms available to evaluate risk, which may be used singularly or in combination. These include probability trees, expected values, utility functions, decision trees, Markov chain analysis and investment appraisal techniques.

13.7.1 Probability trees

Diagrams are a very useful way of representing a situation. In the case of probability, a diagram may be used to help to explain the problem to others. It is a useful way of ensuring that a team has taken account of all possible outcomes. One method of illustration is the probability tree. It is important to distinguish between trees that illustrate independent events, and those that show dependent events. While it may seem obvious, it is worth stating that in the former case, the events can be shown in any order and the results will be the same. In the latter case, the order in which the events are depicted is crucial, since probabilities change with the order of events.

Independent event

As an example of the case of independent events (which is included for illustration purposes only), consider people’s risk appetite preferences and the fact of their eye colour. The two things are not related in any way. Suppose that we know that 30% of people have hazel eyes, 40% have green eyes and 30% have blue eyes. Also that we have asked for risk appetite preferences and found that 20% are risk seeking, 70% are risk neutral and 10% are risk averse. Now if we wish to know the proportion of people with a certain eye colour who have a particular risk appetite, we can use the rule for independent events, and multiply the probabilities. For example, those who are risk seeking and have hazel eyes:

$$P(\text{risk seeking}) \times P(\text{hazel}) = 0.2 \times 0.3 = 0.06.$$

We could use a diagram such as Figure 13.3 to show all the possibilities and their probabilities.

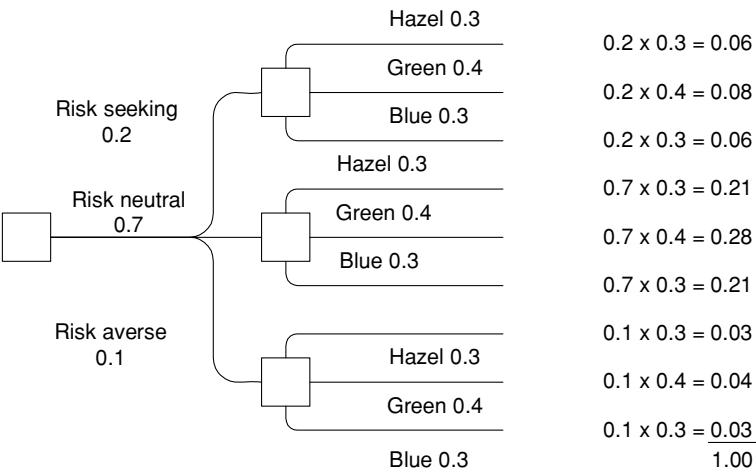


Figure 13.3 Probability tree

Dependent event

If we have three groups of people, a red team of 10 men and 10 women, a blue team of seven men and three women and a green team of four men and six women, then using a two-stage

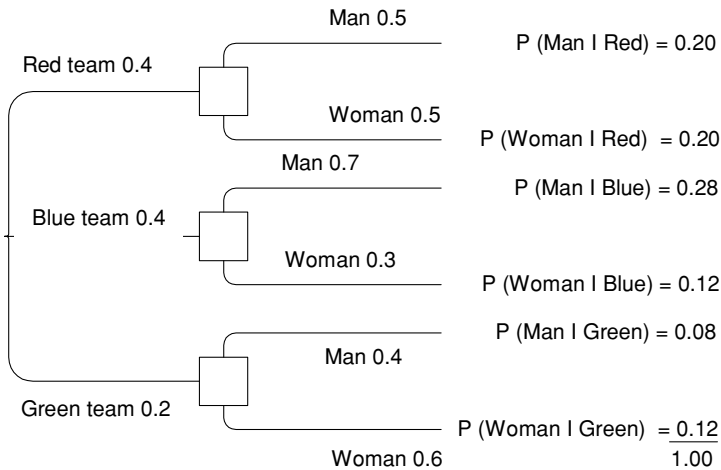


Figure 13.4 Dependent events

selection procedure, first selecting a team and then selecting an individual, the probability of selecting a woman will be dependent on which team is selected. In Figure 13.4 the probabilities of selecting a red, blue or green team are respectively 0.4, 0.4 and 0.2. The probabilities of being a man or a women were derived from the numbers in each team. Since individuals can only belong to one team, then we can treat the teams as mutually exclusive. This means that we can add the probability of selecting a woman in the red, blue and green teams to get the overall probability of selecting a woman:

$$\begin{aligned}
 P(\text{woman}) &= P(\text{woman} | \text{red}) + P(\text{woman} | \text{blue}) + P(\text{woman} | \text{green}) \\
 &= 0.2 + 0.12 + 0.12 \\
 &= 0.44
 \end{aligned}$$

13.7.2 Expected monetary value

Most decision situations can clearly have more than one outcome. When evaluating problems or situations where there is uncertainty about the outcome, the concept of expected values is particularly important. If it is possible to assign a probability of each outcome being achieved, then the combination of the weighted outcomes can be calculated. It is this sum of the weighted outcomes that is known as the *expected monetary value* (EMV). Considering a simple game of chance, if a fair coin shows a head you win £2 and if it shows a tail, you lose £3. If the game were repeated 100 times, you would expect to win 50 times, that is £100 and expect to lose 50 times, that is £150. Your overall loss would be £50 or 50 pence per game *on average*. It is this average loss per game which is referred to as EMV. Given the probabilistic nature of the game, sometimes the overall loss would be more than £50, sometimes less. Rather than working out frequencies, the expected value is usually determined by weighting outcomes by probabilities. In this simple game, the expected value of the winnings is:

$$£2 \times \frac{1}{2} + (-£3) \times \frac{1}{2} = -£0.5 \text{ or } -50 \text{ pence (where } -£0.5 \text{ represents a negative win or loss).}$$

You will of course never lose 50 pence in a single game, you will either win £2 or lose £3. Expected values give a long-run average. In general $E(x) = \sum(x \times P(x))$, where $E(x)$ is the expected value of x .

Example 1

If three possible yields for an investment are 8%, 10% and 14% and the probability that these yields will be achieved is 0.3, 0.4 and 0.3 respectively, then the expected value of this yield is:

$$\begin{aligned} \text{EMV} &= (0.3 \times 8) + (0.4 \times 10) + (0.3 \times 14) \\ &= 10.6\% \end{aligned}$$

In general terms, if the probabilities of $O_1, O_2, O_3 \dots O_n$ are $p_1, p_2, p_3 \dots p_n$ respectively, then

$$\text{EMV} = p_1 O_1 + p_2 O_2 + p_3 O_3 + \dots p_n O_n$$

However, it should be noted that not every outcome will be positive and due allowance must be made in the arithmetic for positive or negative results.

Example 2

Contractors tendering for construction contracts know full well that they will not be successful all of the time and from experience recognise that they will only obtain a certain proportion of the work for which they tender. Suppose that the contractor believes that this proportion is 1 in 10 for a particular section of the industry. The probability that he will be successful with any one tender is 0.1 and the probability of failure is 0.9. To simplify the example, it is assumed the size, duration and complexity of projects tendered for is similar, tenders regularly cost £8000 to prepare and a profit of £100 000 is commonly obtained, then the contractor's expected return for *each* submission is:

$$\begin{aligned} \text{EMV} &= (0.1 \times 100\,000) - (0.9 \times 8000) \\ &= 10000 - 7200 \\ &= £2800 \end{aligned}$$

It is important to understand the concept behind this calculation. First of all it is not *expected* that any one situation will arise in which the contractor will actually receive a £2800 return. On each occasion, when a decision is made to tender for work, it is expected that the outcome will either be a loss of £8000 (arising from the abortive cost of preparing the tender) or a profit of £100 000 (as a result of being awarded the contract). Hence the evaluation of the expected monetary value can only be used with effect where the decision situation to which it applies is one of many similar situations of similar character. The theory of probability is derived on the basis that a large number of trials will take place and the expected monetary value is the weighted average of the outcomes. The expected monetary value decision rule selects the decision alternative with the largest monetary value (EMV).

13.7.3 Utility theory and functions

Although EMV's can be readily calculated with a rudimentary understanding of probability, commonly the decision alternative with the highest EMV is not the most desirable or most preferred alternative for the decision maker. For example, suppose that there is an option to buy either of the two companies listed in the payoff table (Table 13.1) for exactly the same price.

The payoff values listed in Table 13.1 represent the annual profits expected from these two businesses. So in any year, there exists a 50% chance that company A will generate a profit of £150 000 and a 50% chance that it will generate a loss of £30 000. On the other hand, in any one year, there exists a 50% chance that company B will generate a profit of £60 000 and a 50% chance that it will generate a smaller profit of £40 000. If the EMV rule were followed unquestioningly, a buyer should consider company A, as it has the highest EMV. However, company A represents a far riskier investment than company B. Although it is likely company A would generate the highest EMV over the long run, our buyer may not have the financial resources to withstand the potential losses of £30 000 per year that could occur in the short term with this alternative. With company B, our buyer can be sure of making at least £40 000 each year. Although company B's EMV over the long run might not be as great as that of company A, for many decision makers this is more than offset by piece of mind associated with company B's relatively stable profit level. However, other decision makers may be willing to accept the greater risk associated with company A in the hope of achieving the higher potential payoff this alternative provides. As this example illustrates, the EMVs of different decision alternatives do not necessarily reflect the relative attractiveness of the alternatives to a particular decision maker. Utility theory offers a model for understanding this behaviour. Personal attitudes to risk are measured by studying individual tradeoffs between gamblers and certain payoffs.

Utility function of executives

While obtaining a utility function for an individual is relatively straightforward, obtaining a utility function for a group of executives is more complex. Moore and Thomas (1988) describe a number of studies carried out to measure the utility functions of executives. All used the variations of the standard gamble methods described above. Two of these studies are described below.

Study 1: Oil executives were presented with a series of hypothetical drilling opportunities and they were asked whether they would accept or reject each one. There was only moderate success at introducing the oilmen to the formal concept of utility, as they seemed to distrust the idea of using formal graphs to replace judgement.

Study 2: Sixteen executives from a chemical company were questioned both as individuals and as business executives. This study showed (along with similar studies) that different

Table 13.1 Probabilities and outcomes

| Company | Financial position | | | |
|-------------|--------------------|---------|--------|--------------|
| | 1 | 2 | EMV | |
| A | 150 000 | −30 000 | 60 000 | ←maximum EMV |
| B | 60 000 | 40 000 | 50 000 | |
| Probability | 0.5 | 0.5 | | |

executives have utility functions of varying shapes so that obtaining a corporate utility function is particularly difficult.

Moore and Thomas also describe one of the difficulties, which emerged from the use of standard gamble methods, was that many managers found it hard to distinguish between similar probabilities such as differentiating between 0.1 and 0.2 at one extreme and events with probabilities such as 0.8 and 0.9 at the other extreme. To these managers it appears these were simply classifiable as very unlikely and very likely events.

Utility functions

Utility theory assumes that every decision maker uses a utility function that translates each of the possible payoffs in a decision problem into a non-monetary measure known as utility. The utility of a payoff represents the desirability (total worth or value) of the outcome of a decision alternative to the decision maker.

Different decision makers have different attitudes and preferences toward risk and return. Those that are “risk neutral” tend to make decisions using the maximum EMV decision rule. However, some decision makers are risk avoiders or “risk averse” and others look for risk or are “risk seekers”. The utility functions typically associated with these three types of decision makers are shown in Figure 13.5. For convenience the utilities are represented on a scale from

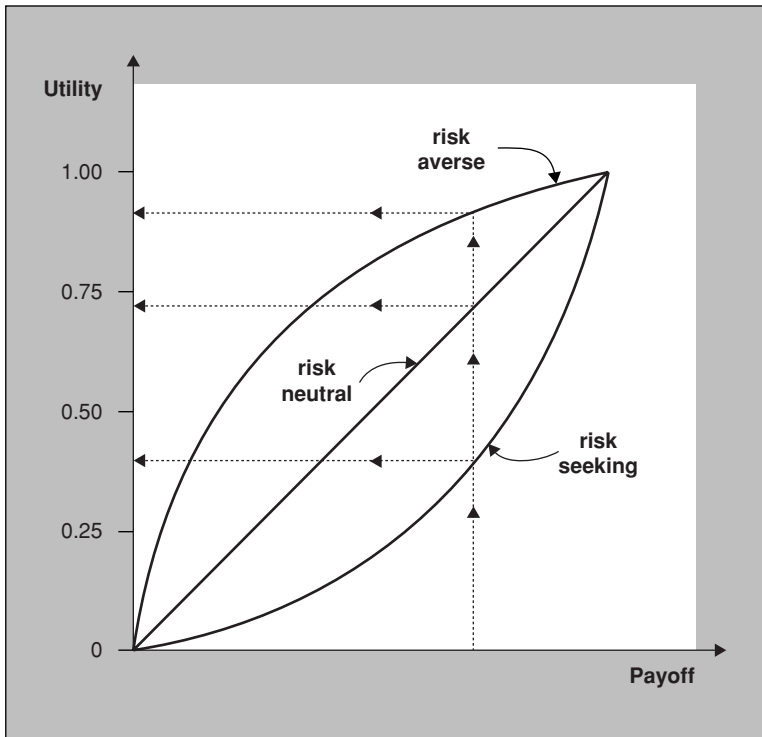


Figure 13.5 Utility functions

0 to 1, where 0 represents the least value and 1 represents the most. Figure 13.5 illustrates how the same monetary payoff might produce different levels of utility for three different decision makers. The “risk neutral” decision maker who follows the EMV decision rule has a constant marginal utility for increased payoffs. That is, every additional pound in payoff results in the same amount of increase in utility. A “risk averse” decision maker assigns the largest relative utility to any payoff but has a diminishing marginal utility for increased payoffs in that every additional pound in payoff results in smaller increases in utility. The “risk seeking” decision maker assigns the smallest utility to any payoff but has an increasing marginal utility for increased payoffs. That is, every additional pound in payoff results in larger increases in utility.

13.7.4 Decision trees

Decision trees enable decision problems to be represented graphically. Figure 13.6 shows a decision problem. The problem is described here.

Example project

As a result of growing air traffic in the UK, the Government has given consideration to construct a new airport to the east of London. Two possible locations for the new airport have been identified, but as a result of a lengthy public enquiry, a final decision on the new location is not expected to be made for another year. The Lawrence hotel chain intends to build a new facility near the new airport once its site is determined. The chief executive faces a difficult decision about where to buy land. Currently land values around the two possible sites for the new airport are increasing as investors speculate that property values will increase significantly in the vicinity of the airport. The hotel chain has identified a site for a hotel close to each airport. It has determined the current price of each parcel of land and estimated the present value of the future cash flows that a hotel would generate at each site if the airport is ultimately located at the site. In addition it has determined the resale value it believes it can obtain if the airport is not built at the site.

Acquisition analysis

Table 13.2 describes the purchase price for each site, the projected cash flows from the respective hotel sites and the site resale values.

Table 13.2 Purchase price, projected cash flows and site resale values

| | A | B |
|---|-----|-----|
| Current purchase price | £19 | £14 |
| Present value of future cash flows if hotel and airport are constructed at this location | £32 | £25 |
| Present value of future sales price if hotel and airport are not constructed at this location | £6 | £4 |

All figures are in millions of pounds.

Decision alternatives

For the example project described above, the following options were under consideration:

- 1. Buy the parcel at location A.
- 2. Buy the parcel at location B.
- 3. Buy the parcels at locations A and B.
- 4. Buy nothing.

Decision tree construction

As shown in Figure 13.6, a decision tree is composed of a collection of *nodes* (represented by circles and squares) interconnected by *branches* (represented by lines). A square node is called a *decision node* because it represents a decision. Branches emanating from a decision node represent the different alternatives for a particular decision. In Figure 13.6, a single decision node (node 0) represents the decision Lawrence Hotels faces about where to buy land. The four branches coming out of the decision node represent the four alternatives under consideration. The cash flow associated with each alternative is also listed. For example, the value -19 below the alternative labelled “Buy A” indicates that if the company purchases the parcel at location A, it must pay £19 million. The circular nodes in a decision tree are called *event nodes* because they represent uncertain events. The branches emanating from event nodes (called *event branches*) correspond to the possible states of nature or the possible outcomes of an uncertain event. Figure 13.6 shows that each decision alternative emanating from node 0 is followed by an uncertain event represented by the event nodes 1, 2, 3 and 4. The branches

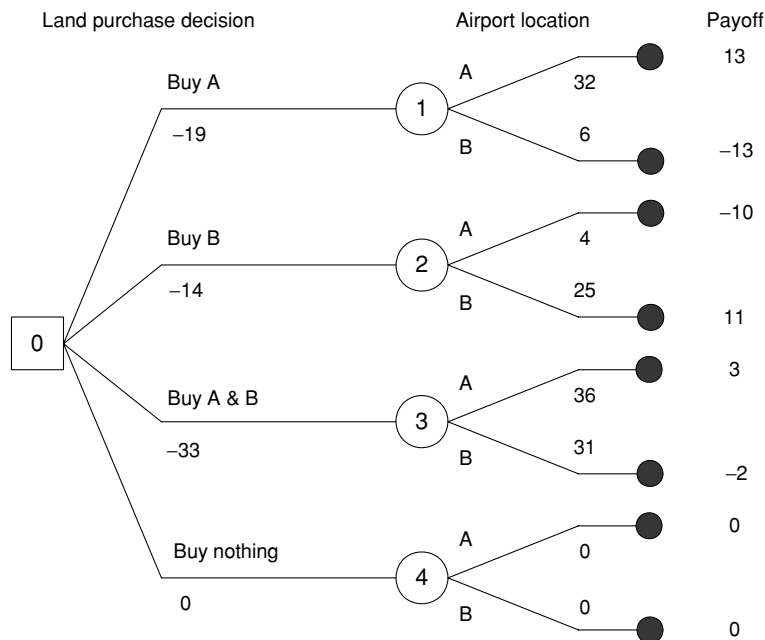


Figure 13.6 Decision tree of land purchase decision

from each event node represent a possible location of the new airport. In each case the airport can be built at location A or B. The value next to each branch from the event nodes indicates the cash flow that will occur for that decision/event combination. For example, at node 1 the value 32 next to the first event branch indicates that if the company buys the parcel at location A and the airport is built at that location, a cash flow of £32 million will occur. The various branches in a decision tree end at the small black dots called leaves. This is because each leaf corresponds to one way in which the decision problem can terminate. Leaves are also referred to as *terminal nodes*. The payoff occurring at each leaf is computed by summing the cash flows along the branches leading to each leaf. For example, following the uppermost branches through the tree, a payoff of £13 million results if the decision to buy the parcel at location A is followed by the new airport being built at this location ($-19 + 32 = 13$). As a guide the cash flow values should be verified on each branch and at each leaf, before constructing the whole tree.

Rolling back a decision tree

After calculating the payoffs at each leaf, the EMV decision rule can be implemented – that is, to identify the decision with the largest EMV. A process known as rolling back can be applied to a decision tree to determine the decision with the largest EMV. Figure 13.7 illustrates this process for the example examined here. As the EMV decision rule is a probabilistic method, Figure 13.7 indicates the probabilities associated with each event branch emanating from each event node (that is, a 0.4 probability exists that the new airport will be built at location A and a 0.6 probability exists that it will be built at location B). To roll back this decision tree, the decision tree is worked through from right to left, commencing with the payoffs, computing

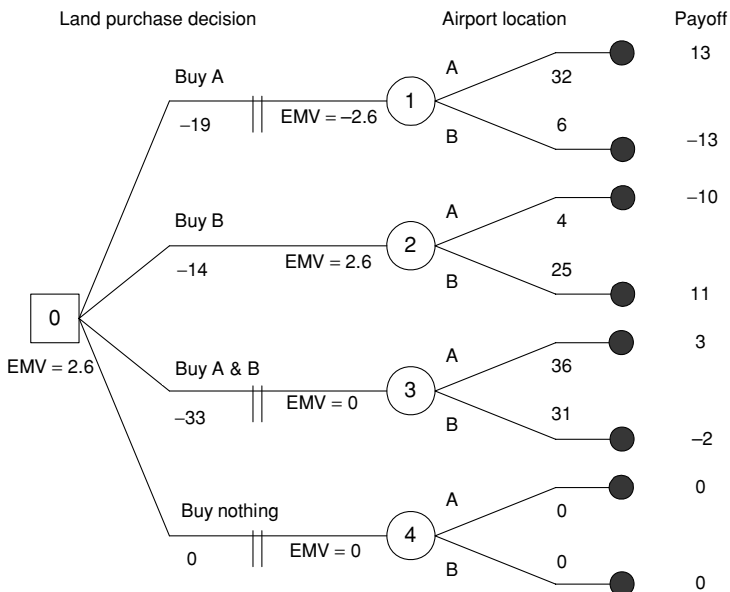


Figure 13.7 Decision tree rolled back

the expected values for each node. For example, the event represented by node 1 has a 0.4 probability of resulting in a payoff of £13 million, and a 0.6 probability of resulting in a loss of £13 million. Thus the EMV at node 1 is calculated as:

$$\text{EMV at node 1} = 0.4 \times 13 + 0.6 \times -13 = -2.6$$

The expected value calculations for the remaining event nodes in Figure 13.7 are summarised as:

$$\text{EMV at node 2} = 0.4 \times -10 + 0.6 \times 11 = 2.6$$

$$\text{EMV at node 3} = 0.4 \times 3 + 0.6 \times -2 = 0$$

$$\text{EMV at node 4} = 0.4 \times 0 + 0.6 \times 0 = 0$$

The EMV for a decision node is calculated in a different way. For example, at node 0 a selection has to be made from four alternatives that lead to events with expected values of -2.6, 2.6, 0 and 0, respectively. At a decision node, the alternative that leads to the best EMV is selected. Hence the EMV at node 0 is 2.6, which corresponds to the EMV resulting from the decision to buy land at location B. The optimal alternative at a decision node is sometimes indicated by “pruning” the suboptimal branches. The pruned branches in Figure 13.7 are indicated by the vertical lines (II) shown on the suboptimal alternatives emanating from node 0.

13.7.5 Markov chain

A Markov chain combines the ideas of probability with those of matrix algebra. A brief description of matrix algebra is included in the footnote below.² The Markov chain concept assumes that probabilities remain fixed over time, but the system that is being modelled is able to change from one state to another, using these fixed variables as transition probabilities. Consider the following transition matrix:

$$\mathbf{P} = \begin{matrix} & \begin{matrix} E_1 & E_2 \end{matrix} \\ \begin{matrix} E_1 \\ E_2 \end{matrix} & \begin{vmatrix} 0.8 & 0.2 \\ 0.3 & 0.7 \end{vmatrix} \end{matrix}$$

This means that if the system is in some state labelled E_1 the probability of going to E_2 is 0.2. If the system is already at E_2 then the probability of going to E_1 is 0.3, and the probability of remaining at E_2 is 0.7. This transition matrix could be represented by the directed diagram in Figure 13.8.

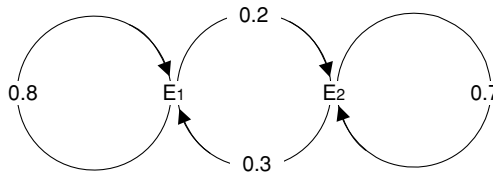


Figure 13.8 Directed diagram

² A matrix is a rectangular array of numbers arranged in rows and columns and is characterised by its size (or order), written as (no. of rows \times number of columns). The whole matrix is usually referred to by a capital letter, while individual numbers, or elements, within the matrix are referred to by lower case letters, usually with a suffix to identify in which row and in which column they appear. Note that a matrix does not have a numerical value, it is merely a convenient way of representing an array of numbers.

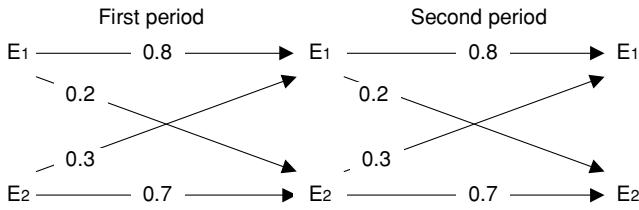


Figure 13.9 Probability over two periods

If we consider the movement from one state to another to happen at the end of some specific period, and look at the passage of two of these periods, we have a situation in Figure 13.9.

The probability of ending E_1 after two periods if the system started at E_1 will be:

$$P(E_1 \rightarrow E_1 \rightarrow E_1) + P(E_1 \rightarrow E_2 \rightarrow E_1) = (0.8)(0.8) + (0.2)(0.3) = 0.7$$

Starting at E_1 and ending at E_2 :

$$P(E_1 \rightarrow E_1 \rightarrow E_2) + P(E_1 \rightarrow E_2 \rightarrow E_2) = (0.8)(0.2) + (0.2)(0.7) = 0.3$$

Starting at E_2 and ending at E_1 :

$$P(E_2 \rightarrow E_1 \rightarrow E_1) + P(E_2 \rightarrow E_2 \rightarrow E_1) = (0.3)(0.8) + (0.7)(0.3) = 0.45$$

Starting at E_2 and ending at E_2 :

$$P(E_2 \rightarrow E_2 \rightarrow E_2) + P(E_2 \rightarrow E_1 \rightarrow E_2) = (0.7)(0.7) + (0.3)(0.2) = 0.55$$

Hence the transition matrix for two periods will be:

$$\mathbf{P} = \begin{array}{c|cc} & E_1 & E_2 \\ \hline E_1 & 0.7 & 0.3 \\ E_2 & 0.45 & 0.55 \end{array}$$

However, note that this is equal to P^2 , i.e. the square of the transition matrix for one period. To find the transition matrix for the four periods, we would find P^4 and so on.

The states of the system at a given instant could be an item working or not working, a company being profitable or making a loss, an individual being given a promotion or failing at an interview etc. In all transition matrices, the movement over time is from the state on the left to the state above the particular column and thus since something must happen, the sum of any row must be equal to 1.

13.7.6 Investment appraisal

Definition

Investment appraisal is appraising or assessing different large-scale capital projects to see what is both affordable and what is possible. Businesses should consider both the risks and the benefits involved. Investment appraisal also involves looking at different projects and choosing the one that offers the best chance of success.

Evaluation

If a business wishes to expand, move, or increase its productivity, then it needs to make capital investment decisions. Such decisions are made in the context of both cost and market uncertainty – what the market is about to do can only be predicted. Businesses try to minimise risk by accurately predicting costs from a known base. The known base must include the initial cost of the investment at current prices. Predictions involve the known amounts of cash that will flow from the project once it is on stream and the estimated lifespan of the project. Research shows that there are four main techniques used in the UK for screening investment proposals. They are:

- average rate of return, also known as accounting rate of return (ARR);
- payback period (PP);
- net present value (NPV);
- internal rate of return (IRR).

Average rate of return (ARR)

This is measured as the average annual return/initial cost and is expressed as a percentage. It shows average return per year as a percentage of initial cost. To calculate the average rate of return a business needs to:

- estimate the lifespan of the project;
- calculate the total profit over the lifespan by taking the initial cost from the net cash inflows;
- divide this by the life span to give the average annual profit/return;
- divide this by initial cost;
- multiply by 100.

Example

Table 13.3 Results for a business for its first four years

| Year | £ | Discount factors | Calculation | Present value £ |
|------|-------|------------------|--------------------|-----------------|
| 0 | (200) | 1 | $(200) \times 1$ | (200) |
| 1 | 50 | 0.909 | 50×0.909 | 45.45 |
| 2 | 50 | 0.826 | 50×0.826 | 41.3 |
| 3 | 100 | 0.751 | 100×0.751 | 75.1 |
| 4 | 160 | 0.683 | 160×0.683 | 109.28 |

For this example the average rate of return (ARR) is 20%

Calculation:

total inflows = 50 + 50 + 100 + 160 = £360

initial cost = 200

overall return = net inflows – initial cost
= £360 – £200 = £160

average return per year = overall return ÷ number of years = £160 ÷ 4 = £40 p.a.

average rate of return = (average return per year ÷ initial cost) × 100
= $(40 \div 200) \times 100 = 20\%$

The average rate of return method is also called the accounting rate of return.

A business will have already established a criterion for implementation, say 5% above current interest rates and can use this information to make a decision.

Payback period (PP)

Payback refers to the length of time it takes for a business to recoup its original outlay. An average rate of return of 10% a year would mean that the initial cost would be covered in a 10-year period. The longer the period of payback, the higher the level of risk involved in the project and the less likely figures are to be accurate. It is much easier to predict two or three years ahead than 10 or 12. While net present value is theoretically the optimum method as it includes the time value of money, businesses like to use the payback technique as it is straightforward to understand and tells you simply how long you have to wait to get your initial investment back.

Net present value (NPV)

This measures how the value of money decreases over time. If a business earns £1000 today, its worth will be less than £1000 in a year's time and even less in five years' time. Future returns are therefore discounted according to the business's estimate of the future value of money. This is called discounting the cash flow. The discount rate is based on current rates of interest and on inflation estimates. If the project is a high-risk investment, then this will also affect discount rates, as will international currency fluctuations, if the business is, for example, buying materials from abroad.

The business will be asking the question "what will £1000 be worth in one years'/three years'/five years' time? The calculation is important, as it can be measured against a risk-free investment such as banking the money. Remember the opportunity cost (cost of the next best alternative) of any decision must always be taken into account. If investors are deprived of their money for a year, then they could equally well be deprived of its use by placing it on deposit in a bank or building society. In this case, at the end of the year they could have their money back and have interest as well. So, unless the opportunity to invest offers similar or better returns, they will be incurring an opportunity cost. An opportunity cost occurs where one course of action deprives investors of the opportunity to derive some benefit from an alternative action. Any investment opportunity must, if it is to make investors wealthier, do better than the returns, which are available from the next best opportunity.

The net present value is positive if the project earns a return above the cost of capital or negative if the project fails to produce a significant return. There are some problems with discounted cash flows and care is needed not to produce misleading results:

- *Equity and entity*: The cash flows do not include the cost of debt and the cost of capital needs to be a weighted cost of capital. Plus currently the cost of equity capital is not subject to a reduction due to tax.
- *Risk*: Many companies use a simple hurdle or "risk adjusted" rate to assess projects. While it is logical to add a margin for risk, this will tend to penalise longer-term projects more excessively. If managers know that the hurdle is 20% then only projects of a certain nature will be put forward for approval.

Using the results from the simple example included in Table 13.3, the present value of the expected inflows = £45.45 + £41.3 + £75.1 + £109.28 = £271.13. This is what the firm believes the future earnings of the project are worth in today's terms:

Calculation:

$$\begin{aligned}\text{the initial outflow} &= \text{£}200 \\ \text{the net present value} &= \text{discounted inflows} - \text{initial outflow} \\ &= \text{£}271.13 - \text{£}200 \\ &= \text{£}71.13\end{aligned}$$

In today's terms the project is expected to be worth £71.13 more than it would cost; therefore it would be worth investing. The higher the net present value, the more the project is worth compared to its cost.

Why NPV is superior to ARR and PP

NPV is a better method of appraising investment opportunities than either ARR or PP because it fully addresses each of the following:

- *The timing of the cash flows:* By discounting the various cash flows associated with each project according to when they are expected to arise, NPV takes account of the time value of money. The discount factor is based on the opportunity cost of finance (that is, the return which the next best alternative opportunity would generate) and so the net benefit after financing costs have been met is identified (as the NPV).
- *The whole of the relevant cash flows:* NPV includes all of the relevant cash flows irrespective of when they are expected to occur. It treats them differently according to their date of occurrence, but they are taken into account.
- *The objectives of the business:* The output of the NPV analysis has a direct bearing on the wealth of the shareholders of a business. (Positive NPVs enhance wealth, negative ones reduce it.) Since we assume that private sector businesses seek to maximise shareholder wealth, NPV is superior to the methods previously discussed.

It was discussed earlier that a business should take on all projects with positive NPVs, when they are discounted at the opportunity cost of finance. When a choice has to be made among projects, a business should select the one with the largest NPV.

Internal rate of return (IRR)

This is the last of the four major methods of investment appraisal that are found in practice. This method also uses discounted cash flows and is really a subset of NPV. Instead of using interest rates to work out NPV it involves a calculation whereby the rate of interest is the unknown factor. The business looks for the point where NPV is zero and reads off the interest rate where this occurs. This can then be compared with current or future predicted rates. The main advantage of this method is that it can be used to compare two capital projects with different initial outlays.

13.8 PROCESS ACTIVITIES

13.8.1 Basic concepts of probability

Chance and the assessment of risk play a major part in a large number of business activities. Hence probability has found a wide range of business applications such as in investment appraisals which require an assessment of risk and a measure of expected outcomes. Many of the process activities examined here require an understanding of the concepts of probability. Probability represents a new set of conceptual tools. Rather than looking at the world as consisting of *deterministic* situations, where everything is known with certainty, we can now consider a range of outcomes to every situation. More than this, by treating the world as *stochastic*, it is possible to assess the chance of particular outcomes happening in a given situation. Hence it is important to consider the number of outcomes from a situation, so that recognition is given to the fact that certain outcomes are possible, even if very unlikely.

There are a number of axioms which may be used to describe probability, which may be paraphrased as follows:

1. The probability of an event lies in the interval $0 < P(E) < 1$ and no other values are possible (where “P” represents probability and “E” represents the event under examination).
2. If something is certain to occur, then it has a probability of 1.
3. If two or more different outcomes of a trial or experiment cannot happen at the same time, then the probability of one or other of these outcomes occurring is the sum of the individual probabilities, for example if $P(E_1) = \frac{1}{4}$ and $P(E_2) = \frac{1}{2}$, then $P(E_1 \text{ or } E_2) = \frac{1}{4} + \frac{1}{2} = \frac{3}{4}$.

In business situations we are concerned about the chances of two or more events happening at the same time, or being mutually exclusive. Hence it is important to be able to classify events.

Mutually exclusive events

A mutually exclusive event is where we add the probabilities together to find the probability that one or the other events occur. For example, if a group of companies consists of 20 public limited companies, 40 private limited companies, 10 sole traders and 30 partnerships, then selecting a company at random we have:

$$P(\text{public limited company}) = 20/100$$

$$P(\text{private limited company}) = 40/100$$

$$P(\text{limited liability companies}) = 20/100 + 40/100 = 60/100 = 0.6$$

20 public limited companies

40 private limited companies

10 sole traders

30 partnerships

Non-mutually exclusive events

Where one outcome has, or can have, more than one characteristic, then these outcomes are said to be *non-mutually exclusive*. In this case it will not be possible to simply to add the

probabilities together as this would involve counting some outcomes twice. For example, if a group of companies contains both limited and unlimited liability companies that have either a London or Manchester office, then to find the probability of selecting a company that has limited liability or has a London office, will be

$$P(\text{public limited company or London office}) = P(\text{public limited company}) + P(\text{London office}) - P(\text{public limited company and London office}).$$

If, for example, there were

| | |
|--|---|
| 20 public limited companies with a Manchester office | 30 private limited companies with a Manchester office |
| 10 public limited companies with a London office | 40 private limited companies with a London office |

As “London office” appears in either side of the equals sign, we need to subtract the probability of this group from our required probability. If, for example, there were 30 public limited companies, of whom 10 are in London, and 70 private limited companies, of whom 40 were in London then:

$$\begin{aligned} P(\text{public limited company}) &= 30/100 \\ P(\text{London office}) &= 50/100 \\ P(\text{public limited company and London office}) &= 10/100 \end{aligned}$$

Therefore $P(\text{public limited company or London office}) = 30/100 + 50/100 - 10/100 = 0.7$.

13.8.2 Sensitivity analysis

Sensitivity analysis is a useful technique to employ when evaluating the profitability of an investment proposal for a particular project. The technique involves taking a single variable (e.g. volume of sales) and examining the effect of changes in the selected variable on the likely performance of the business. By examining the change that occurs, it is possible to arrive at some assessment of how sensitive changes are for the projected outcomes. When the investment appraisal is positive, each input value can be examined to see how much the estimated figure could be changed before the project became unprofitable for that reason alone.

Although only one variable is examined at a time, a number of variables, considered to be important to the performance of a business, may be examined consecutively. One form of sensitivity analysis is to pose a series of “what-if?” questions. If we take sales, for example, we might ask the following “what-if?” questions:

- what if the sales volume is 10% higher than expected?
- what if the sales volume is 5% lower than expected?
- what if the sales price is reduced by 20%?
- what if the sales price is increased by 5%?

In answering these questions, it is possible to develop a better “feel” for the effect of forecast inaccuracies on the final outcomes. However, this technique does not assign probabilities to each possible change nor does it consider the effect on projected outcomes of more than one variable at a time.

13.8.3 Scenario analysis

Another approach to help managers gain a feel for the effect of forecast inaccuracies is to prepare projected financial statements according to different possible “states of the world”. For example, managers may wish to examine projected financial statements prepared on the following basis:

- an optimistic view of likely events;
- a pessimistic view of likely future events;
- a most likely view of future events.

This approach is open to criticism because it does not indicate the likelihood of each scenario occurring nor does it identify the other possible scenarios that might occur. Nevertheless, the portrayal of optimistic and pessimistic scenarios may be useful in providing managers with some feel for the “downside” risk and “upside” potential associated with a project. Scenario analysis is unlike sensitivity analysis, in that it will involve changing a number of variables simultaneously in order to portray a possible outcome.

13.8.4 Simulation

Simulation is a technique that is helpful in analysing financial or programme (time) models, where the values of the input data, the variables, may be uncertain. Variables in this context refer to risks, opportunities, costs or durations. Simulation is possible with the aid of commercially available spreadsheet or programme software. The objective of simulation is to obtain a distribution (and its associated characteristics) for the bottom-line performance figure (measure) derived from considering the input variables in combination. The thinking behind simulation is similar to the idea of carrying out multiple manual what-if scenarios. (In what-if analysis, a manager changes the values of selected input variables in a model to see what happens to the bottom-line performance figure/measure.) The difference between simulation and manual what-if analysis is that the process of assigning values to variables within the cells in a spreadsheet is automated so that (1) the values are assigned in a non-biased way and (2) the spreadsheet user is relieved of the burden of determining those values. With simulation we repeatedly and randomly generate sample values for each uncertain input variable included in the model and then calculate the resulting value of the bottom-line performance measure. The sample values of the performance measure can be used to determine a cumulative frequency curve, to estimate the range of values over which the performance value might vary, to estimate its mean and variance and to estimate the probability that the actual value of the performance measure will be greater than or less than a particular value. All these measures provide greater insight into the risk associated with a given decision than a single value calculation based on the expected values for the uncertain variables. While commercially available software can calculate the output percentiles to several decimal places, to include with a report, say, the 75th percentile to two decimal places (rather than just whole numbers) would be giving the reader a false sense of accuracy, as the input distributions would no doubt have been based on subjective assessments of ranges of financial impact. Alfred North Whitehead (1861–1947), the distinguished logician and philosopher, used to warn against the “danger of the false concreteness”. He stated that a measurement does not become more “accurate” by being worked out to the sixth decimal, when the phenomenon is only capable of being verified within a range of 50%–70%. This is false “concreteness” and misleading.

13.8.5 Monte Carlo simulation

Monte Carlo sampling refers to the traditional technique for using random numbers to sample from a probability distribution. The term Monte Carlo was introduced during World War II as a code name for simulation problems associated with development of the atomic bomb (Palisade Corporation 2002).

How Monte Carlo simulation works

In summary, Monte Carlo looks at a large number of “what if” scenarios for, say, the financial outcome of a business activity or project by accounting for a large number of possible values that each variable could take and weighting each value by the probability of occurrence. In operation Monte Carlo simulation generates a number at random for each risk and cost item within the constraints of the probability distribution assigned to it (commonly triangular or rectangular/uniform) and weights this number in accordance with the probability of the risk occurring. These weighted random numbers are then aggregated to create one model simulation (iteration, trial or scenario), which is one possible value for the business activity or project. (So, for example, if a risk was assigned a uniform distribution with upper and lower limits of £10 and £5 respectively, and a probability of occurrence of 50%, then every other iteration would include the risk and the value assigned to the risk would be between £10 and £5.) This value is then stored. This value (number) is one realistic outcome for the project. The process is then repeated, commonly 5000 times to give 5000 realistic possible outcomes for the project. We are concerned that the model will reproduce the distributions that have been included in the model. The only way that this can be achieved is by generating a large number of iterations. The statistical data describing each iteration is then aggregated and represented graphically by a histogram to show the range of possible outcomes, a probability distribution to illustrate possible skew and a cumulative frequency curve to show the likelihood (as a percentage) of exceeding the business objective (typically a finance limit).

Percentiles

A simulation will provide a series of values (or a number of possible outcomes) for a business activity or project. These results can be divided into equal parts. A series of values can be subdivided into two equal parts around the median. The median is the middle value of an ordered set of data (listing output values by size). The concept of dividing the data into two equal parts can be extended to divide the data into quartiles, which is four equal parts. Quartiles of an ordered set of data are such that 25% of the observations are less than or equal to the first quartile (Q_1), 50% are less than or equal to the second quartile (Q_2) and 75% are less than or equal to the third quartile (Q_3). A series of values may also be subdivided into a greater number of equal parts such as deciles and percentiles, which divide the data into 10 and 100 parts respectively. While percentiles can be calculated manually, they are commonly generated by Monte Carlo simulation tools, to provide confidence levels in, say, the likely outturn cost of an investment. Hence an 80% confidence figure represents an 80% chance that the cost of the investment will be at this figure or less.

Benefits

Monte Carlo simulation offers a number of benefits:

- Readily available proprietary software can be used to automate the tasks involved in simulation and provide outputs suitable for direct transfer into reports.
- Computers can be used to calculate the project outcome distribution quickly.
- Correlations and other interdependencies can be modelled.
- The level of mathematics required to perform Monte Carlo simulation is quite basic.
- Greater levels of precision can be achieved by simply increasing the number of iterations.
- As with all spreadsheet-based models, changes can be made very quickly and the results compared with other models/spreadsheets.
- Complex spreadsheet functions can be included (such as MAX, OR and nested IF functions).
- The results obtained can be investigated with ease.
- Monte Carlo simulation is widely recognised as a valid technique so its results are widely accepted.

Box 13.1 describes one company's use of the application of Monte Carlo simulation to support the analysis of bringing new drugs to market.

Box 13.1 Simulation

Pharmaceutical company PharMerck & Co. Inc. invests about \$2 billion in research and development and capital expenditure annually. Most of the investment goes into long-term risky projects that are impossible to evaluate using traditional cash flow analysis. The reason is that the uncertainties are so wide as to make single point estimates of the various uncertain parameters nonsensical. Instead Merck have developed sophisticated risk analysis models based on Monte Carlo simulation. These models assign probability distributions to the various input parameters and produce a range of possible outcomes in a probabilistic form. Bringing new drugs to market is a very long-term and unpredictable process. Merck have analysed that only 1 in 10 000 explored chemicals reaches the market and becomes a prescribed drug. In 1983 Merck commenced the development of their Research Planning Model and by 1989 it was used to evaluate all significant research and development projects over a 20 year horizon. The major inputs to the model are probability distributions for research and development, manufacturing and marketing variables. The model takes account of a number of medical and technological constraints as well as macroeconomic assumptions. It then uses simulation to compute probability distributions of the cash flow and the return on investment from specific projects.

Source: Vlahos (1997).

13.8.6 Latin Hypercube

Latin Hypercube sampling is a more recent sampling technology than Monte Carlo. It is designed to accurately recreate the probability distributions specified by distribution functions, in fewer iterations than Monte Carlo sampling. Latin Hypercube creates a cumulative probability distribution curve for each variable. The significant difference between Latin Hypercube and Monte Carlo is that Latin Hypercube adopts stratified sampling of the input probability distributions. The process of stratification divides the cumulative frequency curve of each input into equal intervals on the cumulative probability scale of 0 to 1.0. A sample is then taken from each interval or "stratification" of the input distribution. Sampling is forced to represent values in each interval and hence is forced to recreate the input probability distribution. The

number of stratifications of the cumulative distribution is equal to the number of iterations performed. A sample is taken from each stratification. However, once a sample is taken from a stratification, this stratification is not sampled again. During sampling, a stratification is chosen for sampling, then a value is randomly selected from within that stratification. The sampling technique maintains the independence of the variables (where this is desired) by, in any given iteration, sampling, say, variable 1 from stratification 27 and variable 2 from stratification 5 and so on. This preserves the randomness and independence of the variables and avoids unwanted correlation between variables. If low values of distributions were aggregated together or conversely high values of distributions aggregated together, this would produce unrealistic upper and lower limits of the overall model of results.

13.8.7 Probability distributions

Probability distributions defined from expert opinion

Risk analysis models almost invariably involve some element of subjective estimation. Data commonly does not exist to determine, with a degree of precision, the probability distribution of variables within a model for a number of reasons, as explained by Vose (1996):

- The data has simply never been collected before.
- The data is too expensive to obtain.
- Past data is no longer relevant (new technology, changes in political or commercial environment etc).
- The data is sparse requiring expert opinion “to fill in the holes”.
- The area being modelled is new.

When constructing models where probability distributions have been based on subjective estimates, the analyst needs to be aware of the reliance that can be placed on the input data in terms of the knowledge and experience of the subject experts, the degree of involvement of the experts in the process, the culture of the organisation and personal and departmental agendas.

- Were senior project personnel involved in the risk assessment, or were colleagues (with insufficient project knowledge) sent by senior management, to deputise?
- Did the experts have sufficient understanding of the nature and condition of the project to be able to safely make an informed and well-reasoned assessment of the risks, based on experience and professional judgement?
- Was sufficient time given to assess the risks and opportunities?
- Was a “sanity” check carried out to review the influence of low-probability high-impact risks on the overall results?
- Were the differences between discrete and continuous probabilities understood?

13.9 SUMMARY

This chapter examined a series of mechanisms to aid the Evaluate process together with a description of the activities that would be undertaken during the course of this process such as the application of simulation techniques and scenario or sensitivity analysis. The Evaluate process is critical to understanding the combined effect of a group of risks and commonly the uncertainty spreads around a series of cost line items. The process is not an end in itself but simply an aid to decision making. The value of the Evaluate process will be largely dependent

on the quality of the information that formed the inputs. Once a simulation technique has been applied, the results should always be the subject of a sense check to ensure that they appear in the right order (appropriate magnitude). If the results do not appear as expected the probabilities and assessments should be revisited for data entry mistakes. While computer software is now sophisticated and computers enable models to be assessed very quickly, entering the information into spreadsheets and constructing formulas is always subject to human error. Information may have been omitted by mistake, cross-referencing of cells may be wrong or inappropriate functions used. If logical or conditional functions have been used, particularly if they have been nested, they may warrant closer scrutiny. The list of potential errors is virtually endless. If no entry errors are discovered, the appropriateness of the probabilities and assessments should be reviewed. In addition the risk dependencies should be examined to see if the key relationships have been correctly portrayed and if so that the strength of the correlation reflects the situation under examination. Where the results will be used for investment decisions where the sums involved are considerable, it may be appropriate to have the model independently reviewed.

13.10 REFERENCES

- Moore, P.G. and Thomas, H. (1988) *The Anatomy of Decisions*, second edition, Penguin Books Limited, UK.
- Palisade Corporation (2002) *Guide to using @ Risk. Risk Analysis and Simulation Add-In for Microsoft® Excel*, Palisade Corporation, New York, USA.
- Vlahos, K. (1997) "Taking the Risk out of Uncertainty", in *Financial Times Mastering Management*, Financial Times/Prentice Hall, Pearson Education Limited, UK.
- Vose, D. (1996) *Quantitative Risk Analysis: A Guide to Monte Carlo Simulation Modelling*, John Wiley & Sons Ltd, Chichester, England.

The previous chapter examined the risk evaluation stage, which entailed combining the risks and opportunities together to determine their net effect. The plan stage uses all of the preceding risk management effort to produce responses and specific action plans to address the risks and opportunities identified to secure the business objectives. Ensuring these plans are prepared, considered, refined and implemented is the purpose of this stage. If risk management is to be effective this stage is essential. To spend considerable time, effort and energy in identifying and assessing the potential risks and opportunities and not to plan responses to them would be a poor use of resources. This is where competitive advantage is borne rather than just being envisaged. The structure of this chapter is described in Figure 14.1. The next chapter describes the Manage process, which is concerned with monitoring the actual progress of the risk and opportunity actions.

14.1 PROCESS

As described in the preceding chapters, adopting the philosophy of process mapping, each process exists to make a contribution to one or more business enterprise goals. Hence each process should be measured against specific process goals that reflect the contribution that the process is expected to make to the overall enterprise goals. Processes are simpler to comprehend when they have primary goal and subgoals. Hence risk planning is described here as having a primary process goal which is accomplished by a series of what have been termed subgoals, as described below. Any one process is accomplished within a context and might be considered to have two perspectives. The *external view* examines the process inputs, outputs, controls and mechanisms. The *internal view* examines the process activities that transform inputs to outputs using the mechanisms.

14.2 PROCESS GOALS AND SUBGOALS

The primary process goal of “risk planning” is to plan specific management responses to both the threats and opportunities identified.

The risk planning process will be sufficient when it has satisfied these subgoals:

- The aim of the planning process was made explicit.
- Sufficient time was allocated to the planning process.
- The limitations (if any) of the planning process were recorded and stated alongside the results.
- A response was selected for each of the risks and opportunities, from the categories retain, remove, reduce or reassign (transfer).
- The risk appetite of the organisation was made explicit, captured and documented.
- Specific actions were decided upon and recorded with an “implementation by” date as appropriate.

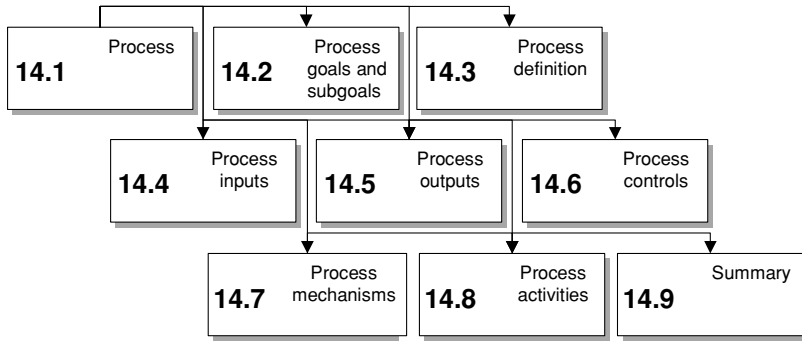


Figure 14.1 Structure of Chapter 14

- The response actions were created by the appropriate business specialist.
- Consideration was given to which stages of the business process the identified risks and opportunities related to, so that actions can be prioritised.
- It was recognised that secondary risks may arise from risk response actions.
- There was recognition that the magnitude and hence the potential impact of identified risks or opportunities would not remain static as a result of stimuli in the business environment.

14.3 PROCESS DEFINITION

The risk assessment process is described by an IDEFO¹ diagram, see Figure 14.2. The diagram describes a process with inputs entering on the left of the box, outputs leaving on the right of the box, controls entering from above and mechanisms or enablers entering from below.

14.4 PROCESS INPUTS

A risk register, details of existing insurance policies, description of the business risk appetite and industry betas, are inputs to the risk planning process:

- *Risk register*: The risk register is an output from all of the preceding processes as is incrementally developed throughout the risk management process.

14.5 PROCESS OUTPUTS

- *Risk responses*: Risk responses contained within a schedule or recorded individually with each response on a separate page of a document will contain as a minimum the risk ID, risk description, impact in terms of time and cost, the risk response category (i.e. remove, reduce or transfer) actions to respond to the risk or opportunity, the owner, manager, actionee, the date by which the actions will be implemented, the anticipated cost of the response and any secondary risks that may arise from the risk. The schedule or document will also contain a description of the interrelationship with other risks and possibly the strength of the correlation.

¹ Integration Definition for Function Modelling.

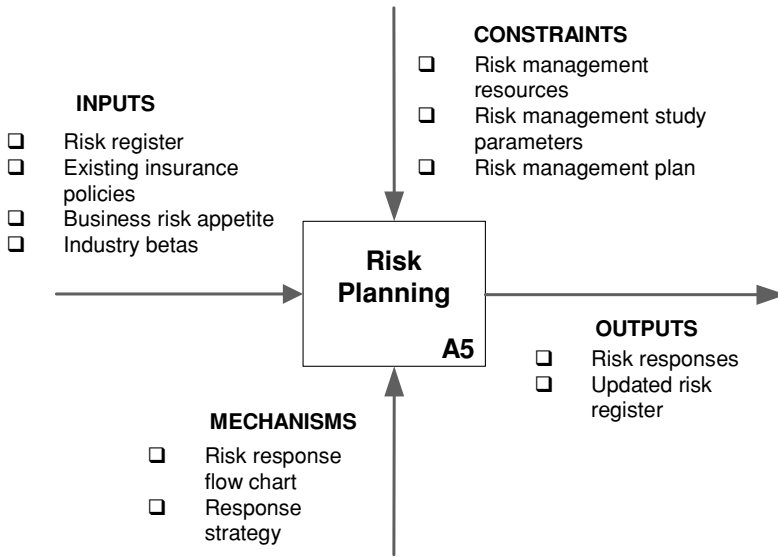


Figure 14.2 Risk planning process

14.6 PROCESS CONTROLS (CONSTRAINTS)

The business risk management culture, risk management resources, the risk management study and the risk management plan (where one exists) regulate the risk identification process. These constraints were discussed previously in Section 10.6.

14.7 PROCESS MECHANISMS

Mechanisms can be methods, tools, techniques or other aids that provide structure to the process activities. There are two primary process mechanisms:

- Resolution strategy (techniques/tools)
- Risk response flow chart

A resolution strategy is a pre-defined plan designed to respond to a particular reoccurring risk.

A risk response flow chart illustrates the decision options that are made to arrive at the desired risk response category. It is a decision-making aid in deciding whether it is more appropriate to, say, transfer a risk rather than, say, attempt to remove it.

14.8 PROCESS ACTIVITIES

The activities of the risk planning process are tasks necessary to transform a prioritised list of risks into a concrete plan of action for risk resolution. These activities consist of:

- Where appropriate, conduct risk research to provide sufficient information to make an informed decision about the risk response.

- As appropriate, developing alternative responses to permit selection of the most advantageous.
- Developing a risk response (or responses) for each risk and opportunity identified.
- Assessing the cost of the response against the impact of the risk should it materialise.
- Identifying the risk owner (the organisation that will retain ownership of the risk).
- Identifying the risk manager (the individual responsible for ensuring the identified response is implemented).
- Identifying the risk actionee (the individual responsible for implementing the risk response action having previously agreed the response with the risk manager).
- Deciding when the responses need to be implemented by.
- Considering the emergence of secondary risks arising from the planned risk response.
- Establishing early warning indicators which measure the success or otherwise of the risk response.
- Defining the business's risk appetite.

14.9 RISK APPETITE

Risk appetite (also referred to as risk preference, attitude, tolerance or capacity) can be defined as the amount of risk a business is prepared to tolerate (be exposed to) at any point in time. A business's tolerance will be a reflection of its capacity to absorb risk. While businesses can benchmark their own tolerance with other businesses in their market or industry (where information is available), each business's risk tolerance is unique. A business's appetite for risk will vary in accordance with its objectives, culture as well as evolving conditions in the overall business environment. Within the insurance industry a board defines and communicates the company's risk appetite or risk tolerance as a three-stage process (PricewaterhouseCoopers 2004). First, objectives for shareholder value creation are defined based on a combination of issues including the market, business processes or regulatory requirements. Second, the company establishes a tolerance for earnings variance based on its stated objectives. Third, business units are required to bid for an allocation of the company's overall risk tolerance in pursuit of their business plans. The risk tolerance can be expressed as capital; as earnings variance; as liquidity and balance sheet activities; and as guidelines for investment. Attitude to risk can be categorised as risk averse, risk neutral or risk seeking. The amount a business is prepared to tolerate, or its risk appetite, will vary according to such issues as the perceived financial exposure of particular risks, the current success of the business, trends in the economy and the attitude of individual board members.² A business's view may be additionally coloured by what other initiatives have already been taken, of which the outcome is not yet known, whether the whole company as a whole would be affected if the outcome were not favourable or whether the company's reputation would be irreparably tarnished. Once an organisation has developed its tolerance levels, the business risk culture can then be used to inform senior management

² The presence of the "novelty gene" in an individual is considered to influence a person's attitude to risk. Recent research by Dr Richard Ebstein and his team at Sarah Hertz Hospital in Jerusalem and Dr Robert Coninger of the Washington School of Medicine in St Louis has led to the discovery of a D4 dopamine receptor gene (abbreviated to D4DR) which may give rise to the trait of seeking excitement through change and novelty. It is nicknamed the "novelty gene". Dr Ebstein describes the disposition of those with the D4DR gene as being characterised by a recurring desire for sensation. These people are impulsive, excitable risk takers who need constant stimulation to satisfy their exaggerated appetite for arousal. Dr Thomas Stuttard, *The Times*, 14 October 1999.

in their decisions about risk tolerance levels for individual projects and programmes in their application for approval. Boards will hope to make informed decisions within their risk tolerance; however, there are several factors which may erode the quality of the information they are presented with, as demonstrated by the checklist below. Boards will have to decide how reliable the information is that they are presented with. They will have to consider for instance the experience of the analyst, the quality of the information upon which the analysis was based, whether risk exposure has been deliberately suppressed to gain project sanction or how effective risk management activity will be.

Checklist: risk evaluation and assessment of the organisation's willingness to take on risk.

- Is the timing and level of risk management planned, agreed and implemented appropriate to the different acquisition lifecycle stages, risk appetite, decision complexity and level of risk exposure?
- Is the organisations risk appetite clear? Is there an understanding and commitment as to what level of risk is acceptable for a project and the ability to communicate this? Does this reflect the potential for increasing organisational performance?
- Is a consistent approach and degree of effort being adopted throughout an analysis to assess the potential impact and probability of identified threats?
- Is there a good understanding of the relationship between the likely potential impact and the probability of the risk occurring (such as very high impact but extremely low probability)?
- Is the risk information required being communicated effectively to support the necessary decision making process, in a timely, clear and cost effective manner?
- Is there a clear understanding of the difference between the resolution of a known problem or issue and responding to risks, and is there an appropriate mechanism for moving an issue to the risk register and vice versa?
- Is a consistent approach being taken regarding the identification and prioritisation of the risks in the risk management process and in any associated issue management process?
- Are the appropriate skills required, available to carry out the analysis?
- Are the risks being understated or overstated when assessed and evaluated as a consequence of commercial, political or individual reasons?
- Is there buy-in at all levels of the organisation to the process of assessing and evaluating the threats? How was this established and is the process embedded?
- Can risk management processes be implemented sufficiently quickly enough to be able to support rapid change? For example, e-commerce developments increasingly require IT developers, business relationship managers, human resources, facility management etc., to gear up to deliver a solution to the 'market' within very tight timescales.
- Is there a demonstrable correlation between the planned risk management activities (including assessment) and the level of risk exposure?

Source: Based on Office of Government Commerce (2002) "Management of Risk: Guidance for Practitioners", The Stationery Office, London.

Example

An example of a risk seeker, a company looking to capitalise on opportunities, is Boeing, one of the largest manufacturing concerns in the world. Boeing has a corporate tradition of risking the company on breakthrough aviation products every couple of decades. In the 1930s Boeing gambled on a new bomber that became the B-17 and is considered by many to be a major contributor to winning World War II. In the 1950s Boeing gambled to build the first all jet commercial passenger plane in the US (the 707) on speculation without having a single customer in hand. Douglas Aircraft, a competitor, was so focused on filling all its orders for the propeller powered DC-7 that it failed to move quickly enough into the development of jet engines and was subsequently acquired by Boeing. In 1968 Boeing built the first jumbo jet, the 747, without enough customer orders to guarantee it could break even. If any of those projects had failed it is reasonable to assume that Boeing probably would have gone out of business.

14.10 RISK RESPONSE STRATEGIES

14.10.1 Risk reduction

The risk response called reduction is also known by the descriptions treat or mitigate. A form of risk reduction is risk diversification. That is the reduction of risk by distribution through, say, investment in multiple stocks rather than a single stock. Diversification is the strategy adopted by those who do not want to “put all their eggs in one basket”. Wilkinson (2003) in his focus on the treatment of hazardous materials in a manufacturing context to prevent personal injury, describes two general approaches that may be taken to reduce risk: reducing the likelihood of a risk occurring and limiting the loss should the risk materialise. Wilkinson describes methods to reduce the likelihood of occurrence of risks through protection, controls and maintenance and methods of risk reduction through the act of risk spreading such as dispersing chemical storage. The petrochemical industry, while not being able to remove the threat of adverse weather conditions, designs rigs to withstand high winds. Contractors, while not being able to remove the threat of plant failure, regularly maintain their plant and keep critical spares close to hand. Credit card companies, while not being able to remove default risk, reduce the impact by setting interest rates at a level which compensates and outsource debt recovery. Many companies lose critical personnel. A business cannot prevent it happening but as Brent Callinicos of Microsoft explains it is possible to examine companies that have suffered a sudden departure (McCarthy and Flynn 2004). In this way it can be seen how that company responded, establish what the public reaction was, examine how the market moved and use this information to inform a response when it happens to Microsoft. You cannot stop a tsunami happening, but it sure is helpful if you can have advance warning.

14.10.2 Risk removal

The risk response called removal is also known by the descriptions: avoid, eliminate, exclude and terminate. Risk removal is the strategy adopted to eliminate a risk altogether when a negative outcome is anticipated. The greatest opportunity to remove a risk is at the commencement of any business activity or a project embarked upon to accomplish a business improvement. As

discussed in Chapter 22, while underdeveloped parts of the world represent very attractive untapped markets, however, the political uncertainty associated with the host nation(s) may be so high that the risk of doing business may be too great to make the opportunity worthwhile. Risks that were previously accepted as a result of failure to properly examine and hence appreciate their true potential impact may, when they materialise, either significantly reduce the benefit of a project, or totally erode its business case. On realisation of a risk's true potential impact post-commencement of a project, the act of abandonment of the project or even postponement (to await more favourable circumstances) can be very expensive.

In the case of risk removal, three tests must be applied:

1. *Opportunity*: On removal of the risk, is a significant opportunity being lost as a result of the risk/opportunity balance being incorrectly assessed?
2. *Business objective*: Having removed a risk or risks by selecting an alternative course of action, is the activity or project outturn now going to satisfy the original business objective?
3. *Cost*: Does the cost of removal of the risk outweigh the impact should it materialise? The true cost of removal may not be immediately apparent if removal is in incremental steps rather than as the result of a single action.

14.10.3 Risk transfer or reassign

The risk response called transfer is also known by the description deflect.

Risk transfer is the strategy adopted to move a risk onto another entity, business or organisation. Contracts and financial agreements are the principal way in which risks are transferred. Transferring a risk does not reduce its likely severity; it just removes the risk to another party. In some cases transfer can significantly increase the impact of the risk, as the party to whom it is being transferred are unaware they are being required to absorb it. The commonest form of risk transfer is by means of insurance. However, transfer through insurance rarely totally transfers a risk as policies typically include excesses, as with motor insurance. The responsibility for initiating this form of risk response lies with the business that owns the risk in the first instance.

Considering the merit of transferring a risk necessitates a business considering both its and the other parties' objectives, the relative abilities of the parties to assume the risk, the degree of control over the context of the risk and the potential gain or loss incentive (Perry 1986). Hence in the case of risk transfer four tests must be applied:

1. *Objectives of the parties*: What is a party's motivation for transferring or accepting the risk and is it transparent?
2. *Ability to manage*: Transfer can only ever be effective if the party that assumes the risk, the recipient, has the ability to manage the risk. That is, it has the ability to implement an action or actions, which can directly either reduce or remove the risk.
3. *Risk context*: The ability of a business to manage a risk will be determined not only by its ability to take direct action, but also by the context of the risk. That is, how static or volatile the source of the risk is and hence the degree of fluctuation in the likely impact and probability of the risk.
4. *Cost effectiveness*: It is usual for a premium to be charged by the party accepting the transferred risk. The issue is whether or not the premium to be paid is less than the likely cost of absorbing the financial impact of the risk, should it materialise. An example of risk transfer is where businesses seeking cost certainty in the procurement of new industrial premises, pass on the risk of poor ground conditions to the contractor. This type of risk

transfer is not cost effective as the risk may or may not materialise and the contractor will have made some provision for this risk in his price. Whether the contractor reflects the full cost of the risk in his price will depend on whether he is in competitive tender, the quality and extent of the soil survey, the competitiveness of the market place, his order book and his knowledge of the area.

Even when a business believes it has transferred a risk, it is usually not totally immune from impact. If a risk is transferred to a contractor say, and the contractor fails to manage it resulting in the project being late, even though the contractor may be subject to a penalty cause for late delivery, there is no escape from having a late project.

14.10.4 Risk retention

The risk response called retention is also known by the descriptions: accept, absorb and tolerate. Risk retention is the strategy adopted when *either* it is more economic to do so *or* when there is no alternative, as the option to transfer, reduce or remove the threat is not available. In the case of risk retention, three tests must be applied:

1. *Options*: If the decision has been taken to retain the risk as it is considered there is no alternative, is it clear that all possible options for removal, reduction or transfer have been examined?
2. *Timing*: Even when it appears that a risk will have to be retained as it is thought there is no alternative, the situation should not be accepted as a *fait accompli*. The business environment never remains static and options may arise even in the short term, in terms of, say, insurance, contract terms, outsourcing or pursuing alternative markets. Hence it will be important to monitor the context of the risk through regular risk reviews and understand when a decision has to be made. Proactive risk management will be required to ensure alternative courses of action are not missed.
3. *Ability to absorb*: If the conscious decision has been taken to retain a risk as it is considered more economic to do so, is it clear *either* what the impact would be should it materialise *or* the likelihood of its occurrence? Is the risk considered to consist of one isolated event or could it be a series of events? Would there be a ripple effect if the risk materialised? Will the impact be purely financial or will it also affect, say, staff turnover, reputation, share price or market share?

14.11 SUMMARY

Risk planning is an essential element of the overall process of risk management. It builds on the preceding activities. You cannot respond to a risk that has not been identified and you are all at sea if you do not know what risks will hurt you the most, when they are likely to occur and how much it will cost to keep them within manageable limits. The speed of change is so great and to capitalise on identification and assessment, response planning must take place hard on its heels. The four risk responses of reduction, removal, reassign and retention were examined. Once the risk response category has been identified for a particular risk, specific actions must then be devised to reflect that response. Commonly it is not possible to remove a risk in its entirety (unless a different business activity is adopted altogether). Hence where a risk can be reduced to within acceptable limits and the cost of the risk response actions do not outweigh the benefits, it is possible to retain a risk while carrying out reduction strategies.

Another example of risk reduction is the response of the ferry companies to the opening of the channel tunnel between Dover and Calais. They could not remove the risk, but rather than accept defeat they reduced the threat by lowering their prices. As a consequence they did not lose custom the way they had feared and the Channel Tunnel did not see its sales figures reach projections, meaning that their debt was not repaid at the rate they had hoped.

14.12 REFERENCES

- McCarthy, M.P. and Flynn, T.P. (2004) *Risk from the CEO and Board Perspective*, McGraw Hill, New York.
- PricewaterhouseCoopers International Limited (2004) "Enterprise-wide risk Management for the Insurance Industry, Global Study" www.pwc.com.
- Perry, J.G. (1986) "Risk management – an Approach for Project Managers", *Project Management*, Vol. 4, No. 4, November, Butterworth and Co. (Publishers) Ltd. p. 215.
- Office of Government Commerce (2002) *Management of Risk: Guidance for Practitioners*, The Stationery Office, London.
- Wilkinson, S. (2003) *Risk Control*, printed and published by Witherby and Company Limited, London.

Risk Management: Stage 6

The previous chapter described the risk planning stage. This chapter describes what is commonly understood to be the last stage within overall risk management process known as the management stage. It is worth reiterating that the individual stages within the practice of risk management as a whole are iterative in that it is frequently necessary to revisit earlier stages when more information becomes available or circumstances change. For each stage relies on inputs from earlier stages. Stage 6 is critical to the successful implementation of the risk management process as a whole. All risk management process maps state a need to ensure risk responses to identified risks are implemented and that implementation is proactively managed. Risk management requires undertaking four key activities:

1. *Reacting* to early warning indicators to forewarn managers of the need to make risk management interventions.
2. *Registering* changes in the details of the risk and opportunities on the risk register.
3. *Reviewing* whether the risk actionees and managers are implementing the responses for which they are responsible.
4. *Reporting* on the success or otherwise of the risk and opportunity management actions and the changes in the overall risk profile.

The structure of this chapter is described in Figure 15.1.

15.1 PROCESS

As described in the preceding chapters, adopting the philosophy of process mapping, each process exists to make a contribution to one or more business enterprise goals. Hence each process should be measured against specific process goals that reflect the contribution that the process is expected to make to the overall enterprise goals. Processes are simpler to comprehend when they have a primary goal and subgoals. Hence risk management is described here as having a primary process goal which is accomplished by a series of what have been termed subgoals, as described below. Any one process is accomplished within a context and might be considered to have two perspectives. The *external view* examines the process inputs, outputs, controls and mechanisms. The *internal view* examines the process activities that transform inputs to outputs using the mechanisms.

15.2 PROCESS GOALS AND SUBGOALS

The primary process goal of “risk management” is to monitor the performance of risk response actions to inform the need for proactive risk management intervention.

The risk management process will be sufficient when it has satisfied these subgoals:

- Early warning indicators have been developed and used to forewarn managers of the need to make risk management interventions.

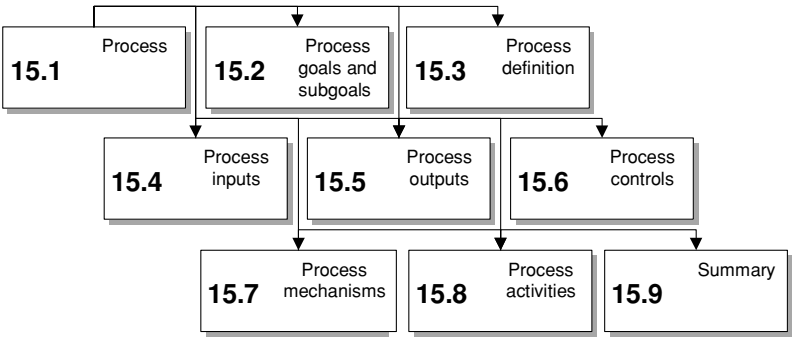


Figure 15.1 Structure of Chapter 15

- Risk actionees and managers are implementing the risk and opportunity responses for which they are responsible in a timely manner.
- Risk registers are regularly updated whereby risk events that have either materialised or are time expired are removed and newly identified risks and opportunities are added. Additionally the register is modified to reflect any changes in the assessment of a risk in terms of either its likelihood of occurrence or its potential impact, managers or owners, categories of risk, degree of completion of risk management actions, secondary risks or the cost of risk management action.
- Reports are issued on a regular cycle providing visibility of the progress made in the success or otherwise of the risk management actions.

15.3 PROCESS DEFINITION

The risk assessment process is described by an IDEFO¹ diagram, see Figure 15.2. The diagram describes a process with inputs entering on the left of the box, outputs leaving on the right of the box, controls entering from above and mechanisms or enablers entering from below.

15.4 PROCESS INPUTS

The risk register is an input into the risk management process. The risk register has been incrementally developed throughout the preceding processs. The risk register can capture the risk responses, or each risk can have its own dedicated record, which captures the planned risk response(s). Additionally, where a risk database has been populated during earlier processes, it would also be an input to this process.

15.5 PROCESS OUTPUTS

Regular updates of the risk register and reports on the effectiveness of the risk response actions are the output from the risk management process. Each report will provide a risk and opportunity status, recording the progress (or lack of it) made against actions assigned to each risk and

¹ *Integration Definition for Function Modelling.*

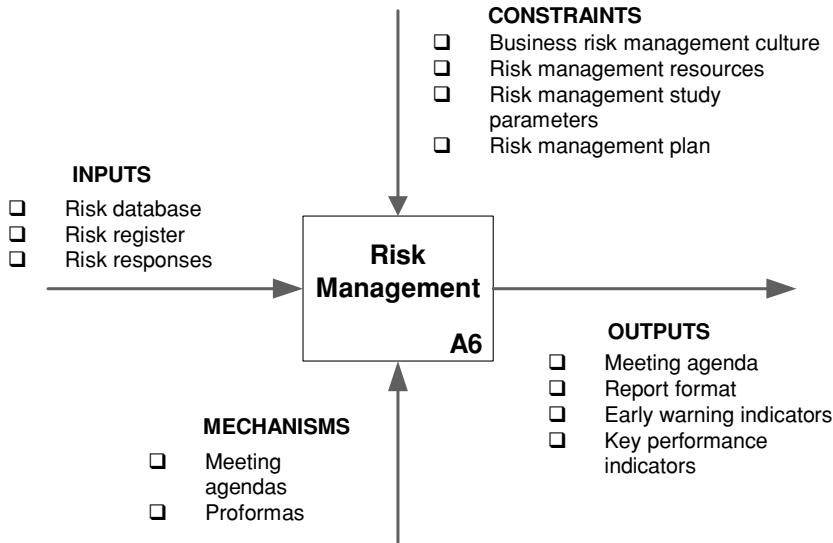


Figure 15.2 Risk management process

opportunity. Key performance indicators (KPIs) can be used as a way of tracking business sensitive issues, so that should certain levels be reached corrective action will be triggered. These KPIs could be measuring staff turnover, liquidity, absenteeism, sickness, sales, stock levels, fluctuations in the share price, fleet vehicles involved in accidents, loss of customers, vehicle breakdowns, customer complaints, supplier default, late payments and so on, depending on the nature of the business.

15.6 PROCESS CONTROLS (CONSTRAINTS)

From Figure 15.2 the business risk management culture, resources, study and plan (where one exists) regulate/constrain the risk identification process.

- The *business risk management culture* will constrain the risk identification process in terms of the degree of importance, commitment and enthusiasm attached to the process and the extent of support provided when the risk management process is initiated.
- The *risk management resources* will constrain risk identification in terms of cost and hence resources and time. When cost is a constraint, particularly when external support is being commissioned, less expensive and most likely less experienced staff will be allocated to the assignment. When solely time is lacking, quicker methods can be used. When departmental managers are not available deputies can be sent invite and fewer attendees can be invited to participate in the risk identification. If internal risk management resources are constrained, the process can be accelerated. All of these constraints are likely to compromise process effectiveness, particularly the breadth of risk identification, potentially leaving “blind spots”.
- *Actionees and managers* will constrain the risk management process if they have insufficient time to devote to implementing risk management actions, pursuing opportunities, assessing the effectiveness of their actions, or attending meetings to report on the success or otherwise of the response actions.

- *Infrequency risk meetings* will constrain the process particularly if they are the sole vehicle for monitoring the implementation of risk management actions, discussing the emergence of new risks and debating secondary courses of actions if initial risk management actions are not totally effective.

15.7 PROCESS MECHANISMS

Mechanisms can be methods, tools, techniques or other aids that provide structure to the process activities. There are two primary process mechanisms:

- Meeting agendas
- Proformas

15.8 PROCESS ACTIVITIES

The activities of the risk management process are tasks necessary to ensure that risk management is a proactive process which executes, monitors and then intervenes to implement corrective action. Hence these activities consist of:

- *Executing*: Risk response actions.
- *Monitoring*: The effectiveness of risk management actions.
- *Controlling*: Intervening when events are not accomplished to plan.

15.8.1 Executing

The time, effort and energy expended in the earlier process of the risk management process, in terms of developing planned actions to respond to the risks and opportunities identified, will largely be wasted, unless they are executed. The What? When? and Who? of execution will have been agreed and recorded in the Plan process, described in the previous chapter.

15.8.2 Monitoring

Having executed the activities agreed in the Plan process it is necessary to monitor progress against the Plan and assess whether everything is proceeding healthily. While monitoring is valuable it must be recognised for what it is. It is a process of observation. It is neutral, as it is outside any event. For monitoring to be effective it must be embedded into a business. It must be part of the culture. It must focus not only on the success (or otherwise) of the planned responses to previously identified risk and opportunities, but also changes in the business that might signal new emerging risks. The market in which businesses operate never stands still. In a high-risk environment, the one thing that can be expected is that not everything will happen according to plan. A fall in sales, increased absenteeism in the workforce, late delivery by suppliers, an increase in the number of returned products or a decrease in margins may all be a signal of emerging risks. A system of early warning indicators (EWIs) – predetermined trigger points – is required to draw manager's attention to either the lack of effectiveness of risk management actions or changes in essential measures. The first question to answer on deciding on the measures to adopt is "What do we measure?", not "How do we measure?"

The selection of the measures will be made by determining which sets of events are signalled out as being important. Events considered important should not only include measurable

(quantifiable) events but also unquantifiable events. The measurable results are things that happened, they are in the past. There are no facts about the future. Improvements made by competitors to their rival products are not measurable until it is too late to have any control. Hence a balance between the measurable and the non-measurable is therefore a central problem for management. Monitoring, which does not look ahead (as well as backward) at least in terms of boundaries and restraints, will possibly misdirect and misinform. Additionally the more energy that is focused on previously identified risks, the greater the danger that what looks like effective monitoring will actually mean less effective risk management and control. One of the objectives of monitoring is the collection of information on risks for later use. Lessons learnt during the Management process can be used to improve future risk management processes.

Monitoring activities should include an understanding of whether:

- Actionees and managers are working together successfully.
- New risks and opportunities are being identified across all business sectors.
- The emergence of changes in legislation and compliance give rise to new risks to the business.
- Risks that have not materialised or been overtaken by events such as changes in the market have been closed out.
- The risk register is regularly updated.
- Previous insurance arrangements are still valid.
- Hedging opportunities have changed.
- Funding opportunities have changed.
- Previous market analysis is still valid.

15.8.3 Controlling

Unlike monitoring, controlling is not a neutral activity. Controlling requires intervention. Control activities concentrate on using the information gathered from Monitoring to inform decision making. Controlling means understanding who needs what information for what purpose, when. To give a manager control, controls must satisfy seven specifications (Drucker 1977):

- They must be economical
- They must be meaningful
- They must be appropriate
- They must be congruent
- They must be timely
- They must be simple, and
- They must be operational

Control is a principle of economy

The less effort needed to gain control of the process, the better the control design. The fewer controls required, the more effective they will be. Usually adding more controls does not give better control. All it does is create confusion. The first question that needs to be asked when designing a system of control is “What is the minimum information I need to know I have control?” The answer will vary depending on the type of business and the risk management framework established. The ability of proprietary computer software or an in-house database to spew out masses of data does not make for better controls. On the contrary, what gives

control is asking the question “What is the smallest number of reports and statistics needed to understand a phenomenon and to be able to anticipate it?”

Controls must be meaningful

That means that the events to be measured must be significant either in themselves or they must be symptoms of at least potentially significant developments (such as emerging new risks like the introduction of a new rival product by a competitor). Controls should be related to the specific objectives of the risk management process and relate to such questions as “Have the risk responses been implemented, were they effective and what residual risk remains?” Additionally the controls should be focused on those risks that will have the greatest impact on the business.

Controls have to be appropriate to the character and nature of the phenomenon measured

The controls must give the right vision and information for effective action. It is of little benefit just to report that a risk response action has not been completed by the due date. There must be a succinct description of what this means for the business. If a risk previously identified is now considered to be a greater threat, how large is the threat now, what is its probability, is the risk static or fluctuating and has the ability to manage it diminished or increased. If a new opportunity has emerged what is the window for capitalising on the potential benefits, how likely is it that competitors will have identified the same benefit, are competitors better placed to respond and what are the likely rewards. If a new risk has been identified what are its characteristics.

Measurements have to be congruent with the events measured

It is particularly important in the field of risk management for managers to think through what kind of measurement is appropriate to the event it is meant to measure. He/she has to know when “approximate” is more accurate than a firm looking figure worked out in great detail. He/she has to know when a range is more accurate than even an approximate figure. He/She has to know that “larger” and “smaller”, “earlier” and “later”, “up” and “down” are quantitative terms and often more accurate, in fact, more robust than any specific figures or range of figures. It can be an important piece of information that an event cannot be measured with precision but can only be described within a range or as a magnitude. To say “we have 33% of the market” sounds reassuringly precise. However, it is likely to be so inaccurate a statement as to be virtually meaningless. It might have been relevant for one point in time. What it really means is that “we are not a dominant factor in the market, but we are not marginal either”.

Controls have to be timely

Frequent measurements and very rapid “reporting back” do not automatically give better control. Indeed they may frustrate control. The time dimension of control has to correspond to the time span of the event measured. There is often reference to “real time” controls, that is controls that inform instantaneously and continuously. There are events where “real time” controls are desirable such as in the pharmaceutical industry during drug production. However,

few events need such controls. Most risks have an “event window” when they are likely to occur. Controls can be tailored around these windows.

Controls need to be simple

Complicated controls do not work. They deter the participants, at worse they confuse. They misdirect attention away from what is to be controlled towards the mechanics of control. The what, when, how and why need to be transparent. Controls should not be an automatic copy of what was applied elsewhere. They need to suit the particular circumstances of the moment. They need to be revisited on a regular basis to discern if they are still effective.

Finally controls must be operational

They must be focused on action. Action rather than information is their purpose. “Have the planned risk response actions been implemented?” or “Have the potential opportunities been examined and results obtained?” The results must always reach the person or persons who are capable of taking controlling actions. Controls must not be constrained by predetermined meeting dates. Controls must be flexible enough to suit the circumstances.

15.9 SUMMARY

There is clearly little point in identifying risks if they are not responded to. The previous chapter looked at response planning. This chapter described control. Control is all about being proactive and for risk management this means managing the response process to ensure they are implemented and monitoring their effectiveness. Management must be focused on the issues that matter. The activities carried out during the assessment and evaluation processes will inform the priority issues. Management intervention must also be timely to be effective and with the rate of change in the market place timing is all. For actions to be effective they need to be simple (as far as they can), so that they are readily understood by those charged with carrying them out.

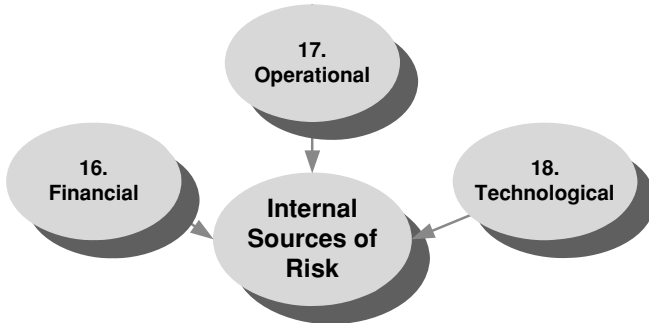
15.10 REFERENCE

Drucker, P.F. (1977) *Management, an Abridged and Revised Version of Management: Tasks, Responsibilities, Practices*, first published in Great Britain 1979 by Pan Books Ltd, London, seventh printing, 1983.

Part IV

Internal Influences – Micro Factors

This part of the book examines the way in which *internal* “micro” influences impact business performance. These “micro” sources of risk are distinct from the “macro” factors discussed in Part V, in that micro risk factors are to a large degree generated internally and hence within the sphere of influence of any one business, whereas “macro” factors are predominantly outside the control of individual businesses. Micro factors include financial, operational and technological risks. The chapters contained in this part of the book describe the *internal* sources of risk included in the risk taxonomy described in Chapter 11. The sequence of the chapters that follow mirrors the sequence in which the subjects appear in the taxonomy.



Financial Risk Management

This chapter examines “financial risk management”, the first of three classes of risk exposure that businesses face, relating to what I have termed “internal processes” within the risk taxonomy proposed in Chapter 11. The other two classes of risk within these internal processes are operational and technological risk, which are discussed in Chapters 17 and 18 respectively. All three classes of risk are considered to be controllable by businesses to a large degree. This chapter focuses on what are considered to be the seven most significant financial risks to face any business. Their significance to any one business will vary and will depend on a vast number of variables, such as the strength of the relationship with their key customers, the volatility of the markets they operate in, the number of competitors, the length of time the business has been in existence, the common level of overseas trade, dependency on suppliers, market share and so on. There is a clear overlap between financial and economic risk and reflecting the theme of Section 1.1 in the Introduction, these classes of risk cannot be looked at in isolation but must be viewed together. The decisions taken by a business in managing these risks will determine its performance, position and longevity. Through sound financial management, businesses can evaluate business strategies that are appropriate to their risk appetite, market and exposure profile. It will be seen that financial sources of risk have the potential to be “fatal” in that they can bring about the demise of a business and hence require a clear management strategy. The structure of this chapter is illustrated in Figure 16.1.

16.1 DEFINITION OF FINANCIAL RISK

What is financial risk? Financial risk is the exposure to adverse events that erode profitability and in extreme circumstances bring about business collapse. It can include the failure of financial systems, regulatory non-conformances or compliance issues. It can include bad debt, adverse changes in exchange rates, overdependence on a single supplier, loss of a key customer, loss of overseas investments and poor hedging decisions. It can include poor investment decisions concerning plant, machinery and buildings. The essential feature of investment decisions is time. Investment in a new manufacturing plant, railway or ship, for instance, involves making an economic outlay at one point in time which is expected to yield economic benefits to the investor at some other point in time. The risks associated with such investments are that they cost more to procure than at first envisaged and/or when complete the market into which the investor wishes to compete has changed, diminished or even disappeared.

16.2 SCOPE OF FINANCIAL RISK

The sources of risk considered to be embraced within the term “financial risk” are very considerable. These may be considered to include:

- Liquidity risk arising from a short-term inability to meet financial obligations such as payment of suppliers, the premise’s landlord or staff.

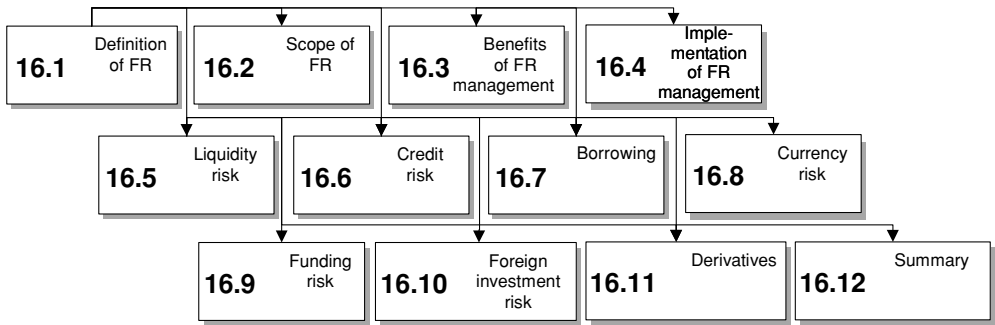


Figure 16.1 Structure of Chapter 16

- Credit risk, stemming from lack of payment of goods supplied to customers.
- Interest rate risk which affects consumer's disposable income, resulting in a deterioration of trade for, say, retailers, house builders and manufacturers.
- Inflation on, say, investment projects in terms of cash flows and the discount rate over the life of the project.
- Currency risk in terms of expected cash flows from overseas investments being adversely affected by fluctuations in exchange rates.
- Funding risk for borrowers, in relation to being unable to meet capital repayment requirements (and interest) and having to pay fixed charges on the company assets.
- Foreign investment risk such as restrictions on the right to repatriate funds, high levels of taxation on profits remitted overseas, the temporary freezing of bank account balances or the expropriation of assets.
- Derivatives risk arising from speculation in the market or hedging by, say, buying forward with the aim of buying a commodity at a price lower than the price prevailing at the time.
- Systems risk such as loss as a result of failure caused by the breakdown of business procedures, processes or systems and controls.
- Outsourcing risk arising from the default of a counterparty who has gone into liquidation, failed to deliver goods by a due date or breached contract conditions.

16.3 BENEFITS OF FINANCIAL RISK MANAGEMENT

Financial risk management affords a business benefits as it for instance:

- Improves financial planning and management, which sits at the heart of corporate governance.
- Facilitates more robust investment decisions.
- Informs hedging decisions.
- Encourages the development of constant monitoring of markets and the economy to inform decision making.
- Encourages the practice of due diligence when outsourcing and engaging with counterparties.

16.4 IMPLEMENTATION OF FINANCIAL RISK MANAGEMENT

The development of a sound system of financial risk management will depend on a number of issues such as:

- The development of robust financial systems and internal controls.
- The development of concise, lucid reporting tools.
- The preparation of a cash budget plan, to diminish the likelihood of the threat of liquidity risk.
- Securing credit insurance to cover non-payment of goods or services/bad debt.
- Carrying out comprehensive due diligence on counterparties whose default could seriously harm the business.
- Monitoring predicted changes in interest rates, so that business activity can be modified to diminish its effect.
- Carrying out a robust assessment of planned investments, using tried and tested techniques.

16.5 LIQUIDITY RISK

Liquidity is the risk that a business will be unable to obtain funds to meet its obligations as they fall due either by increasing liabilities or by converting assets into money without loss of value. The more liquid an asset, the more easily it can be converted into money. *Near money* is an example of an asset that can be quickly converted into a medium of exchange at little cost. In the UK the most obvious type of near monies is *time deposits* with banks and building societies. They pay higher rates of interest than current accounts. Depositors need to give notice if they wish to withdraw from the account (hence the term “time” deposit). Extreme liquidity results in bankruptcy. Hence liquidity risk can be a “fatal” risk. However, such extreme conditions are commonly the outcome of other risks. For instance significant losses due to the default of a key customer can raise liquidity issues and doubts as to the future of the business. All companies will only stay solvent by ensuring that all cash obligations (such as salaries, rents, tax etc.) can be met by a combination of investment liquidity, funding sources and contingent liabilities (liabilities that can be terminated quickly).

16.5.1 Current and quick ratios

One crude measure of liquidity is the “current ratio”, which measures the relationship between the current assets and the current liabilities. *Current assets* are those assets which are either in the form of cash or can be expected to be reasonably turned within one year from the date of the balance sheet. Current assets might comprise of cash and bank balances, debtors (“accounts receivable” in the US) and stocks (“inventories”). The debtors figure is usually net of an allowance (or provision) for doubtful debts. *Current liabilities* are those liabilities which are expected to have to be paid within one year from the date of the balance sheet. Liabilities commonly consist of creditors (“accounts payable” in the US), taxation owing, dividends payable and short-term borrowing. The relationship between the current assets and the current liabilities is known as the “current ratio” and is defined as follows:

$$\text{current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

The financial statements in Box 16.1 relate to a fictitious firm Lawrence plc, which owns a small chain of wholesale/retail carpet stores.

Box 16.1 Current ratio calculations

| Balance sheets as at 31 March | Yr X | | Yr Y | |
|---|----------------|--------------|----------------|--------------|
| | £000 | £000 | £000 | £000 |
| Fixed assets | | | | |
| Freehold land and building at cost | 451.2 | | 451.2 | |
| <i>Less</i> accumulated depreciation | <u>70.0</u> | 381.2 | <u>75.0</u> | 376.2 |
| Fixtures and fittings at cost | 129.0 | | 160.4 | |
| <i>Less</i> accumulated depreciation | <u>64.4</u> | <u>64.6</u> | <u>97.2</u> | <u>63.2</u> |
| | | 445.8 | | 439.4 |
| Current assets | | | | |
| Stock at cost | 300.0 | | 370.8 | |
| Trade debtors | 240.8 | | 210.2 | |
| Bank | <u>33.5</u> | | <u>41.0</u> | |
| | 574.3 | | 622.0 | |
| Creditors: amounts due within one year | | | | |
| Trade creditors | (221.4) | | (228.8) | |
| Dividends proposed | (40.2) | | (60.0) | |
| Corporation tax due | <u>(60.2)</u> | | <u>(76.0)</u> | |
| | <u>(321.8)</u> | <u>252.5</u> | <u>(364.8)</u> | <u>257.2</u> |
| | | 698.3 | | 696.6 |

For the year ended 31 March Yr X, the current ratio of Lawrence plc is:

$$\text{current ratio} = \frac{£574.3}{£321.8} = 1.8 \text{ times}$$

The ratio reveals that the current assets cover the current liabilities by 1.8 times. In some texts, the notion of an “ideal” ratio (usually two times) is suggested for businesses. However, as Atrill argues, this fails to take into account the fact that different types of business require different current ratios (Atrill 2000). For example, a manufacturing business will often have a relatively high current ratio because it is necessary to hold stocks of finished goods, raw materials and work-in-progress. It will normally sell goods on credit, thereby incurring debtors. A supermarket chain, on the other hand, will have a relatively low ratio, as it will hold only fast-moving stocks of finished goods and will generate mostly cash sales. The higher the ratio, the more liquid the business is considered to be. As liquidity is vital to the survival of a business, a higher current ratio is normally preferred to a lower one. However, if a business has a very high ratio this may suggest that funds are being tied up in cash or other liquid assets and are not being used as productively as they might otherwise be.

A more immediate measure of liquidity can be found by excluding stocks from the numerator (the number above the line). The resulting ratio is known as the quick or acid-test ratio:

$$\text{quick ratio} = \frac{\text{current assets} - \text{stocks}}{\text{current liabilities}}$$

16.5.2 Mitigation of liquidity risk

Mitigation is a key aspect of liquidity and is defined as the payment of debts when they fall due. To prevent the situation developing where debts cannot be met, a company should prepare a cash budget, i.e. a plan of future cash receipts and payments based on specified assumptions about such things as sales growth, credit terms, issues of shares and expansion of plant. The purpose of drawing up cash budgets is to ensure that the company neither runs out of cash nor keeps cash idle when it could be profitably invested.

16.6 CREDIT RISK

Credit risk is the oldest and perhaps the most important of all risks in terms of the size of potential losses. Credit risk may be defined as the economic loss suffered due to the default of a borrower or counterparty. Banks describe credit risk as the risk that customers default, that is fail to comply with their obligations to service debt. Credit risk for a professional consultancy such as solicitors, architects or town planners is where customers default on payment of invoices. Manufacturers who sell goods on credit face the risk that the customer may not ultimately pay. Default by a small number of large customers can generate large losses, which can lead to insolvency. The “quantity” of the risk is the outstanding balance lent to the borrower. The “quality” of risk results both from the chance that the default occurs and from the guarantees that reduce the loss in the event of default. The amount at risk, the outstanding balance at the date of default, differs from the total potential loss in the event of default, due to the potential recoveries. The recoveries depend upon any credit risk mitigations, such as guarantees (collateral or third party), the capability of negotiating with the borrower and the funds available (if any) to repay the debt after repayment of other lenders. Finally potential recoveries from default cannot be predicted in advance. As a consequence credit risk may be said to have three main components: default, exposure and recovery. These are discussed in turn below.

16.6.1 Default risk

Default risk is the probability of the event of default. There are several definitions of “default”: missing a payment obligation, breaking a covenant, entering into a legal procedure, or economic default. *Payment default* is declared when a scheduled payment has not been made for a minimum period, such as say three months after the due date. *Breaking a covenant* occurs when fixed upper and lower bounds of a financial ratio are not adhered to and this is recognised as a technical default. Such a default usually triggers legal proceedings commenced by negotiation. The default may also be purely *economic*, without being associated with any specific event. An economic default occurs when the economic value of assets goes below the value of the outstanding debts. The economic value of assets is the value of future expected cash flows discounted to the present day. If the market value of assets drops below that of liabilities, it means that the current expectations of future cash flows are such that the debt cannot be repaid. Default risk is measured by the probability that default occurs during a given period of time. Default depends upon the credit standing of a borrower. Such credit standing depends on several factors such as market outlook, the size of the company, its competitive context, the quality of management and the shareholders. Default probability cannot be measured directly. Historical statistics can and are used by such organisations as banks. From the statistical

records of observed defaults the ratio of defaults in a given period over the total sample of borrowers can be derived. It is a default rate, which often serves as a historical proxy for default probability.

16.6.2 Exposure risk

Exposure risk relates to the uncertainty surrounding the payment of future amounts. For all lines of credit where there is a repayment schedule, the exposure risk is considered small. This is not true for all lines of credit. Committed lines of credit allow the borrower to draw on those lines whenever he/she wants to, depending on needs and subject to a limit fixed by the bank. Project financing implies uncertainty in the scheduling of outflows and repayments. Other exposure risks arise with derivatives. Here the source of uncertainty is not the borrower's behaviour but lies in market movements. The liquidation value of the derivatives depends upon such moves and changes constantly. Whenever the liquidation value is positive, there is a credit risk for the bank, since it loses money if the counterparty defaults.

16.6.3 Recovery risk

Recovery risk relates to the uncertainty over the likely recovery of outstanding amounts due. Recovery risk depends upon the type of default. A payment default does not mean that the borrower will never pay, but it is the catalyst for various types of actions such as renegotiation up to the obligation to repay all outstanding balances. If no corrective action can be considered it is common for legal procedures to take over. In such a set of circumstances, all commitments of the borrower will be suspended until some legal conclusion is reached. At best, recoveries are delayed until the end of the legal procedure. At worst there are no recoveries at all as the company is resold or liquidated and no excess funds are available to repay an unsecured debt. The credit loss of any transaction can always be described as the product of three terms:

$$\text{loss} = \text{exposure} \times \text{default} \times \text{severity}$$

Loss is the actual economic loss to the company as the result of the default or downgrade of a counterparty – that is, as the result of a *credit event*.

16.6.4 Credit insurance

A risk mitigation action for credit risk is credit insurance. Competitively priced credit insurance covering payment for the sale of goods and services is available in many countries and according to Holliwell (1998) can offer:

- protection against bad debts, usually up to a maximum of two years – the level of the cover will be subject to negotiation, but 90% is common. The party taking out the insurance can usually decide the risk that they want to keep and the percentage to ensure;
- cover for all or only a selection of the buyers of your products or services;
- insurance for either domestic or international trade, or both;
- cover for “country” risk, including delays in transferring money from the buyer's country, the actions of governments which prevent delivery or payment, including those countries through which goods or monies have to pass, and war;

- international debt recovery services (the insurer may be prepared to contribute towards the costs of recovery and will have access to specialist lawyers and debt collectors in different countries);
- the benefit of the credit insurer's skills and experience, based upon their exposure in the markets;
- "pre-credit risk" insurance for the costs incurred during the manufacture period before shipment;
- cover for the seller's costs and expenses and for contractual interest due from the buyer;
- the opportunity to win business by offering attractive terms because credit risk is no longer a significant factor;
- the ability to argue for cheaper finance from the bank, as the potential negative impact of any bad debts on the business has been reduced (and hence the ability to use the cost savings from the cheaper finance to pay for the credit insurance); and
- cover for the losses in meeting forward exchange commitments, where the buyer has defaulted.

Offer of cover from an insurer

Insurers providing credit risk, in reaching their decision, will principally take into account:

- industry sector;
- country risk (if appropriate);
- the types of goods or services that are being sold;
- terms of trade; and
- the track record of existing buyers of the goods or services.

Conditions upon which insurance claims are settled

The conditions upon which insurers will settle will vary and depend on their policies, but there are common terms, which are described by Holliwell as follows:

- the goods or services have been delivered or otherwise provided;
- the debt is valid and that the buyer actually exists (the insured party would have to satisfy itself that the buyer was genuine);
- the buyer is not disputing payment (the insurance policy will state settlement terms if the buyer disputes, that is whether the insurer will pay anything, a reduced amount or whether the goods have to be resold before the insurer will make any contribution to the loss);
- credit limits have been respected (it is anticipated that businesses will set discretionary limits for individual buyers); and
- insurance premiums have been paid – these normally comprise a basic fee plus a premium based on the level of activity.

16.6.5 Counterparty risk

Default risk referred to above occurs when other organisations that they trade with may not honour their obligations in terms of failing to pay for or deliver goods or services, or to

repay a borrowing. On the assumption that your business has fulfilled its obligations under the transaction, default on the part of the counterparty may arise as they:

- have become insolvent;
- have themselves been let down by a trading partner;
- cannot obtain the resources (plant, labour and or materials) necessary to complete the transaction;
- are prohibited from meeting their obligations through national trading controls.

When dealing with a counterparty take time to understand the risks and implement risk response actions to limit exposure on the assumption that not all risk can be removed in its entirety. Sensible actions include:

- undertaking an appropriate level of due diligence;
- recognising that circumstances change and that the circumstances of long-term trading partners may change;
- establishing the background to a potential counterparty in terms of their legal form (limited liability company, partnership or sole trader), their activity (primary – related to natural resources, secondary – processing of materials such as manufacturing or tertiary – services such as insurance and banking), and size (turnover, assets, number of employees and capitalisation);
- not committing to a single customer or supplier;
- knowing the extent of your exposure at all times;
- acting immediately in the event of default, or its likelihood.

16.6.6 Due diligence

For a business considering an undertaking such as entering into a major contract, committing to a joint venture, acquiring a business or lending money to a third party, it will need to undertake due diligence as part of the evaluation process. The extent to which due diligence will be appropriate will depend upon individual circumstances but will primarily be judged on what damage could be done if the activity went “sour” and it had an adverse impact on the business. Holliwell (1998) offers a checklist of those issues that may need to be considered as part of due diligence in Box 16.2:

Box 16.2 Due diligence checklist

| | | |
|--|--|---|
| <ul style="list-style-type: none">• Strategic plans and vision• Nature and diversification of products and services• Market potential and industry risks• Product lifecycles• Technological risk | <ul style="list-style-type: none">• Key financial ratios• Basis of funding and terms of borrowing• Accounting, depreciation and dividend policies• Off-balance-sheet transactions• Control of treasury functions (are the exposures and risks understood?) | <ul style="list-style-type: none">• Stock levels• Operation and IT risks• System costs and useful life• Property, plant and equipment• Environmental issues |
|--|--|---|

- | | | |
|---|---|---|
| <ul style="list-style-type: none"> • Research and development programme and costs • Market shares and the order book • Competitors, positionings and differentiations • Spread of client base and dependencies/continuity • Customer care policy and practice • Public relations • Trends such as turnover and costs • Benchmarking of key factors • Whether growth has been generic or by acquisition • Changes in the nature of the business • Intra-group trading and exposures • Management style • Ethics and culture • Historic and management accounts • Financial strengths and weaknesses | <ul style="list-style-type: none"> • Economic risks • Terms of trade • Debtors and creditors, their spread and collection/payment periods • Currency exchange rate exposures • Interest rate exposures • Lease and hire purchase agreements • Security given and available • Borrowing covenants • Bases of valuations, including property, stock and intellectual assets • Insurance, including assets, key man and loss of profits • Human resources, including spread and depth of skills and experience, continuity and succession planning • Board and organisational structures • Executives' contracts, remuneration and benefits • Subcontracting and outsourcing • Resources, including dependencies and threats to suppliers | <ul style="list-style-type: none"> • Licences, goodwill, intellectual assets, franchises • Capital and contractual commitments • Contingent liabilities, including warranties and guarantees • Pension, health and welfare commitments • Group structure • Equity structure and holders, including warrants, options and conversion rights • Legal entity and jurisdiction of business • Legal issues, including ownership of assets • Litigation • Regulatory issues • Management information systems and knowledge management • Country risks • Political risks • Risk management culture, policy and risk aversion • Sensitivity analysis • Disaster scenarios |
|---|---|---|

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Shim and Siegel (2001) provide signals for both quantitative and qualitative corporate failure which can be incorporated in prompt lists, questionnaires and risk registers to “interrogate” the board and department heads and establish the risks facing a company at a particular point in time (see Box 16.3).

Box 16.3 Quantitative and qualitative factors

Quantitative factors in predicting corporate failure

- Low cash flow to total liabilities
- High debt-to-equity ratio and high debt to total assets
- Low return on investment
- Low profit margin
- Low retained earnings to total assets
- Low working capital to total assets and low working capital to sales
- Low fixed assets to non-current liabilities
- Inadequate interest/coverage ratio
- Instability in earnings
- Small-size company measured in sales and/or total assets
- Sharp decline in price of stock, bond price and earnings
- A significant increase in beta (beta is the variability in the price of the company’s stock relative to a market index)
- Market price per share is significantly less than book value per share
- A significant rise in the company’s weighted-average cost of capital
- High fixed cost to total cost structure (high operating leverage)
- Failure to maintain capital assets. An example is a decline in the ratio of repairs to fixed assets

Qualitative factors in predicting failure

- New company
- Declining industry
- Inability to obtain adequate financing, and when obtained there are significant loan restrictions
- A lack in management quality
- Moving into new areas in which management lack expertise
- Failure to the company to keep up to date, especially in a technologically oriented business
- High business risk (e.g. positive correlation in the product line; susceptibility to strikes)
- Inadequate insurance coverage
- Fraudulent actions (e.g. misstating inventories to stave off impending bankruptcy)
- Cyclicalities in business operations
- Inability to adjust production to meet consumption needs
- Susceptibility of the business to stringent governmental regulation (e.g. companies in the real estate industry)
- Susceptibility to energy shortages
- Susceptibility to unreliable suppliers
- Renegotiation of debt and/or lease agreements
- Deficient accounting and financial reporting systems

Source: Shim and Siegel (2001).

16.7 BORROWING

If a company is borrowing money, it will want to know on what basis is the interest rate determined, what the interest rate will be on commencement of the borrowing, whether the interest rate is fixed or variable and when the interest will be payable.

The rate of interest paid will depend on a combination of some or all of the following:

- *Amount:* The rate of interest often varies according to the amount of money involved (known as the “principal” or “capital”). Larger amounts usually attract preferred rates as the overhead and control costs may be proportionally lower.
- *Term:* Relates to the length of time the monies are to be borrowed. The longer the term, the greater the opportunity for something to happen that could prevent the borrower from paying all or some of the borrowings. The credit risk of this may be small if repayment is on demand or due within a short period of time, but the situation may change radically in, say, three years.
- *Forecasts:* If market interest rates are projected to either increase or decrease, then that will be taken account of in fixed rates for medium- and longer-term loans or deposits.
- *Inflation:* A provider of funds hopes to earn a rate of interest at least equal to the rate of inflation over the term of the loan, otherwise the amount the provider obtains at the outturn will, in current terms, be less than the original principal (or capital).
- *Risk:* The greater the concern of the lender that they may be unable to recover all or some of their money, for whatever reason, the higher the reward they will want for putting their funds at risk.
- *Opportunity cost:* The rate of interest may be influenced by the fund provider foregoing other transactions to commit to this transaction.
- *Market:* Interest rate charges may be influenced by regulatory requirements, international competition and the publishing of available rates.

The subject of interest rates is discussed in Chapter 19.

16.8 CURRENCY RISK

There is always a risk that the expected cash flows from overseas investments will be adversely affected by fluctuations in exchange rates. As a result the value of a foreign currency receivable or payable when translated into the currency of the country where the business is located may be more or less than expected. For example, a UK-based business may receive less than expected from a transaction with a French business because of a rise in the euro against sterling. The kinds of business operations that will expose a business to exchange rate risk include the import or export of goods or services, investing in overseas assets such as factories and raising finance from overseas sources. Where a business is engaged in overseas transactions involving large sums, an adverse movement in exchange rates can be catastrophic and so it will usually adopt some form of “hedging” to minimise the risk. There are various ways in which hedging can be carried out and the most important of these are discussed in Chapter 19.

16.9 FUNDING RISK

Most companies rely to a greater or lesser extent on the issue of loan capital to finance their operations. Lenders will normally enter into a contract with a company which will clearly set out the rates of interest to be paid on the loan and the due dates for interest payments and

capital repayments. Businesses that have secured loans may have had to offer security to the lender by pledging a *fixed charge* on assets held by the company or a *floating charge*, which “hovers” over the whole of the company’s assets. The riskiness of loan capital (for lenders) can be measured in terms of default risk. A number of credit-rating agencies including the Standard & Poor’s Corporation and Moody’s Investor Services (both contactable on the web) attempt to place loan capital issued by companies into categories according to the level of default risk. The lower the risk of default (by the borrower) the higher the rating category that will be assigned to the debt. The ratings used by the two leading agencies mentioned above are very similar. Where a company is rated by both of these agencies, the risk category assigned to it is usually the same. Where a difference arises it is normally only a difference of one risk category.

To arrive at an appropriate debt rating, an agency will rely solely on published information. In the case of Standard & Poor’s it states that credit ratings are based on current information furnished by the obligors or obtained by Standard & Poor’s from other sources it considers reliable, it does not perform an audit in connection with any credit rating and may, on occasion, rely on unaudited financial information. Credit ratings may be changed, suspended, or withdrawn as a result of changes in, or unavailability of, such information, or based on other circumstances. The rating classification assigned to the debt will be derived from an assessment of all of the relevant information and as it is not formula driven some subjective assessment comes into play. Once a debt has been assigned to a particular category, it will tend to remain in that category unless there is a significant change in circumstances.

The analytical framework and methodology of determining the credit estimate is similar to that of traditional credit ratings, with credit estimates being determined by a rating committee utilising a global rating scale (AAA . . . + / –) see Box 16.4. Issue credit ratings can be either long term or short term. Short term ratings are generally assigned to those obligations considered short term in the relevant market. In the US, for example, that means obligations with an original maturity of no more than 365 days. Long-term issue credit ratings are based, in varying degrees, on the following considerations: likelihood of payment, capacity and willingness of the obligor to meet its financial commitment on an obligation in accordance with the terms of the obligation. It takes into consideration the creditworthiness of guarantors, insurers, or other forms of credit enhancement on the obligation and takes into account the currency in which the obligation is denominated. The issue credit rating is not a recommendation to purchase, sell, or hold a financial obligation, inasmuch as it does not comment as to market price or suitability for a particular investor.

Box 16.4 Credit rating definitions

| | |
|--|---|
| Standard & Poor’s ratings definitions. The issue rating definitions are expressed in terms of default risk. | |
| AAA | An obligation rated “AAA” has the highest rating assigned by Standard & Poor’s. The obligor’s capacity to meet its financial commitment on the obligation is extremely strong. |
| AA | An obligation rated “AA” differs from the highest-rated obligations only to a small degree. The obligor’s capacity to meet its financial commitment on the obligation is very strong. |
| A | An obligation rated “A” is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than |

| | |
|------------------------------|---|
| | obligations in higher-rated categories. However, the obligor's capacity to meet its financial commitment on the obligation is still strong. |
| BBB | An obligation rated "BBB" exhibits adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitment on the obligation. |
| BB, B, CCC, CC, and C | Obligations rated "BB", "B", "CCC", "CC", and "C" are regarded as having significant speculative characteristics. "BB" indicates the least degree of speculation and "C" the highest. While such obligations will likely have some quality and protective characteristics, these may be outweighed by large uncertainties or major exposures to adverse conditions. |
| BB | An obligation rated "BB" is less vulnerable to non-payment than other speculative issues. However, it faces major ongoing uncertainties or exposure to adverse business, financial or economic conditions which could lead to the obligor's inadequate capacity to meet its financial commitment on the obligation. |
| B | An obligation rated "B" is more vulnerable to non-payment than obligations rated "BB", but the obligor currently has the capacity to meet its financial commitment on the obligation. Adverse business, financial or economic conditions will likely impair the obligor's capacity or willingness to meet its financial commitment on the obligation. |
| CCC | An obligation rated "CCC" is currently vulnerable to non-payment, and is dependent upon favourable business, financial and economic conditions for the obligor to meet its financial commitment on the obligation. In the event of adverse business, financial or economic conditions, the obligor is not likely to have the capacity to meet its financial commitment on the obligation. |
| CC | An obligation rated "CC" is currently highly vulnerable to non-payment. |
| C | A subordinated debt or preferred stock obligation rated "C" is currently highly vulnerable to non-payment. The "C" rating may be used to cover a situation where a bankruptcy petition has been filed or similar action taken, but payments on this obligation are being continued. A "C" also will be assigned to a preferred stock issue in arrears on dividends or sinking fund payments, but which is currently paying. |
| D | An obligation rated "D" is in payment default. The "D" rating category is used when payments on an obligation are not made on the date due even if the applicable grace period has not expired, unless Standard & Poor's believes that such payments will be made during such grace period. The "D" rating also will be used upon the filing of a bankruptcy petition or the taking of a similar action if payments on an obligation are jeopardised. |

Note: The ratings from "AA" to "CCC" may be modified by the addition of a plus (+) or minus (−) sign to show relative standing within the major rating categories.

Source: Standard & Poor's website: standardandpoors.com

16.10 FOREIGN INVESTMENT RISK

When considering investment opportunities, a business may wish to examine opportunities in overseas countries. These kinds of opportunities, however, attract additional risks to those associated with domestic market opportunities. The first step in the management of corporate foreign investment risk is to acknowledge that such risk does exist and that managing it is in the interests of the business and the stakeholders. The next step is much more difficult: the identification of the individual risks, an understanding of their magnitude and what steps might be taken to address them.

16.10.1 Country risk

Risks arise from the geographical distance of the market, which can increase both the cost and time associated with debt collection. While legal action can be taken against a customer within a foreign jurisdiction that does not pay, the costs of recovery are not guaranteed. Most governments encourage investment from overseas business because of the beneficial economic effects; however, some governments adopt policies that are discouraging. These policies may include restrictions on the right to repatriate funds, high levels of taxation on profits remitted overseas, the temporary freezing of bank account balances and the expropriation of assets. Therefore, when making an overseas investment decision, there must be some assessment of the risks. There are specialist agencies that produce indices of “country risk” and which may be of assistance. However, while it is possible to devise country risk indices (with weighting applied to each criterion) the criteria employed may not always be relevant to the investment under review.

If the risks described are considered significant the investing business has the option to abandon the proposal or try to develop strategies which attempt to minimise or overcome them. Such strategies might include a joint venture with the overseas government or with a local business in the host country, ensuring local labour, plant and materials are used wherever possible, or by becoming a “good corporate citizen” through charitable donations. In some instances it may be possible to transfer (at a price) certain risks such as the expropriation of assets by taking out insurance with a credit insurance business. This will mean the risk is being passed to the insurer.

16.10.2 Environment risk

There may be insufficient experience of the business environment within the overseas market within which it is intended to invest. There will most probably be different laws, working practices, cultural and ethical norms and taxation regimes, which may have a profound effect on the viability of an investment proposition.

16.11 DERIVATIVES

The options and futures markets come under the general heading of markets in derivative products or derivatives. Their main function is the redistribution of risk. The customers who use these markets fall into two main categories: those who want to hedge (guard against) a risk to which they are exposed in the normal course of their business and those who are prepared to accept a high risk in return for the possibility of large rewards, the traders and speculators. The

term derivative stems from the simple fact that they are financial products derived from some other existing product. Shares, currencies, bonds and commodities such as zinc and cocoa are all products. People are familiar with what these are. Derivatives are based on these existing products. Derivatives are contracts between two parties (the “buyer” and the “seller”), which are known as the counterparties.

They fall into three principal categories: *options*, *futures* and *swaps*. Derivatives are available to cover many types of exposure, including:

- interest rates;
- foreign currency exchange rates;
- commodities, such as energy (e.g. oil and gas), bullion (e.g. gold and silver), base metals (e.g. copper and nickel) and agriculture (e.g. sugar); and
- equities.

The gain or loss under a financial derivative depends on (or “derives from”) movements in the market price of the asset or index to which the contract relates (known as the “underlying”). A derivative contract where one counterparty has to pay a premium (example *option*) also has the right but not the obligation to exercise the contract. Derivative contracts where no premium is paid at the outset (e.g. *futures* and *swaps*) commit both counterparties to complete the transaction at settlement dates(s), which normally means that one of them will have to make payment to the other. Derivatives can be either “exchange traded” or “over the counter” (“OTC”)

16.11.1 Exchange traded derivatives

Exchange traded derivatives are bought and sold on recognised exchanges throughout the world, among the best known being the Chicago Board of Trade (CBOT) and the London International Financial Futures Exchange (LIFFE). Trading on most exchanges is conducted by a combination of “open outcry” and computer-based dealing. LIFFE has been progressively transferring its business to screen-based dealing. Once a deal has been agreed, a “clearing house” associated with the exchange (and which may be owned by the exchange itself or by banks or other financial institutions) steps in. From that point onwards, the clearing house acts as the counterparty to both the buyer and the seller of the contract. Each counterparty is therefore taking its risk on the clearing house and not on the other counterparty. The price of an exchange traded derivative is whatever it fetches in the market. There are, however, restrictions on the minimum amounts by which prices for each of the standard derivative contracts can move. These minimum movements are known as “ticks” and differ from one type of derivative to another.

16.11.2 Over-the-counter derivatives

Over-the-counter (OTC) derivatives are contracts written to meet the specific needs of individual clients, such as businesses, banks or governments. They are usually provided by banks or other financial institutions and cannot be traded on any exchange. The actual contract document is likely to be based on the standard terms and conditions of an organisation such as the International Swaps and Derivatives Association (ISDA). The most common OTC derivatives are *options* and *swaps*. With an OTC contract, the pricing of the derivative is negotiated

between the counterparties, normally between a bank and a client. The risks associated with exchange traded and OTC derivatives include:

- Credit risk
- Settlement risk
- Aggregation risk
- Operational risk
- Liquidity risk
- Legal risk
- Reputational risk
- Concentration risk

16.12 SUMMARY

In this chapter various aspects of financial risk were examined which have to be managed to maintain a business as a going concern.

Liquidity risk has to be managed to ensure a business has sufficient funds to meet its obligations and two ratios to measure liquidity labelled current ratios and quick ratios were discussed. Cash budgets are cited as a proactive mitigation action to minimise the risk. However, this response cannot eradicate the risk. *Credit risk* was defined as the economic loss suffered due to default by a borrower or counterparty. For a bank this means default by a customer on a loan, for a consultancy it means the non-payment of fees and for a manufacturer it means non-payment of goods. Credit risk was broken down into default, exposure and recovery risk. A mitigation action was described as credit insurance.

Interest rate risk can have both an upside and a downside. Lower interest rates mean more borrowing and consumer spending and lowering of the exchange rate makes our products cheaper abroad. Higher interest rates lead to less consumer spending and greater saving. Additionally the risk exists that the expected cash flows from overseas investments will be adversely affected by fluctuations in exchange rates. As a result the value of a foreign currency receivable or payable when translated into the currency of the country where the business is located may be more or less than expected. It was discussed that where a business is engaged in overseas transactions involving large sums, an adverse movement in exchange rates can be catastrophic and hence businesses usually adopt some form of hedging to minimise the risk.

Funding risk for businesses was seen to be an inability to repay loans resulting in a fixed or floating charge on their assets. For lenders other than imposing charges, the other mitigation action at their disposal was the use of a credit-rating agency such as the Standard & Poor's Corporation. Businesses examining opportunities in overseas markets it was felt are exposed to a harsher risk environment than businesses pursuing domestic market opportunities. This additional risk being based on the geographical distance of the market, which can increase both the cost and time associated with debt collection. Derivatives were described as a way of guarding against risk and also as a source of speculation for those that wished to trade on the markets. Three primary reasons for wanting to manage these risks are to preserve the business full stop, protect it against financial losses and to ensure that a business (where listed) is able to maintain dividend payments within predetermined limits. Investors are normally unlikely to welcome "surprises" in dividend policy and may react by selling their shares and investing in a business, which has a more stable and predictable dividend policy. This behaviour will lower the value of a business's shares and will increase the cost of capital.

16.13 REFERENCES

- Shim, J.K. and Siegel, J.G. (2001) *Handbook of Financial Analysis, Forecasting and Modelling*, second edition, Prentice Hall Press.
- Atrill, P. (2000) *Financial Management for Non-specialists*, second edition, Pearson Education Limited, Harlow, England.
- Holliwell, J. (1998) *The Financial Risk Manual, a Systematic Guide to Identifying and Managing Financial Risk*, Pearson Education Limited, UK.

Operational Risk Management

The previous chapter examined financial risk management as the first of three classes of risk exposure that businesses face relating to what I have termed “internal processes” within the risk taxonomy proposed in Chapter 11. This chapter examines the second of the “internal processes”, called operational risk. A business cannot claim that it has an enterprise risk management process if it does not address operational risk. The FSA expresses its interest in operational risk as it considers “operational risk is present in all firms and can affect a firm’s solvency, the fair treatment of its customers and the incidence of financial crime” (Financial Services Authority 2002). The perceived significance of operational risk is also illustrated by the results of a study (referred to by Carey and Turnbull 2001) where financial managers, in consideration of the risks facing their company and assessing their relative importance, considered the principal risks to be generally operational and strategic. The effectiveness of operational risk will depend on how comprehensive the identification process is. The structure of this chapter is based on the risk taxonomy included in Chapter 11, which is used as a vehicle to examine the elements, attributes and features of operational risk and describes an appropriate response strategy.

It is clear that there has been an increasing interest and development in the application of operational risk (Peccia 2001; Financial Services Authority 2002; Maxant 2004;¹ Financial Services Authority 2005), particularly among financial institutions, as a result of six drivers:

- as a consequence of the widely reported operational risk losses such as the destruction of Barings Bank;
- from the trend of managing risk under a RAROC² framework leading to a shift from the control (minimisation) of risk to the management of risk (balancing the need for risk control with the cost of control);
- from the fact that operational risk now forms a substantial part of the current risks assumed by businesses and the expectation this will raise;
- as a result of the realisation by financial institutions that risk management is not an add-on activity, but is a core competency which can be used to competitive advantage;

¹ Deloitte’s 2004 Global Risk Management Survey was based on interviews with senior executives from the world’s top 162 global financial institutions. The survey was intended as a global benchmark for the state of risk management in the financial sector. According to the survey, Operational Risk Management (ORM) continued to be considered a challenging and relatively new field compared to more established risk management disciplines. However, the survey did show an increase over 2002 in the number of firms that had established ORM programmes even though the majority of respondents indicated that at least some improvement in functionality was still required.

² In the financial sector in particular there is no performance level without a price to pay in terms of risk. Hence the risk/reward combination is meaningful. When risk is omitted from performance evaluation it is not possible to: compare the performance of transactions or business units, evaluate the risk to be transferred to counterparties or subdivide the perceived total business risk between business units or individual transactions. Risk adjusted profitability addresses these issues. One of the main solutions to defining risk-adjusted profitability is known as “RAROC”. RAROC, or Risk-Adjusted Return On Capital, adjusts the return for risks, for instance by calculating margins net of statistical defaults. RAROC is expressed as a ratio and adjusts the earnings by the expected loss (EL) and uses CAR (risk-based capital) as a measure of unexpected loss (UL): $\text{RAROC} = \text{Earnings} - \text{Expected Loss (EL)} / \text{CAR (or UL)}$.

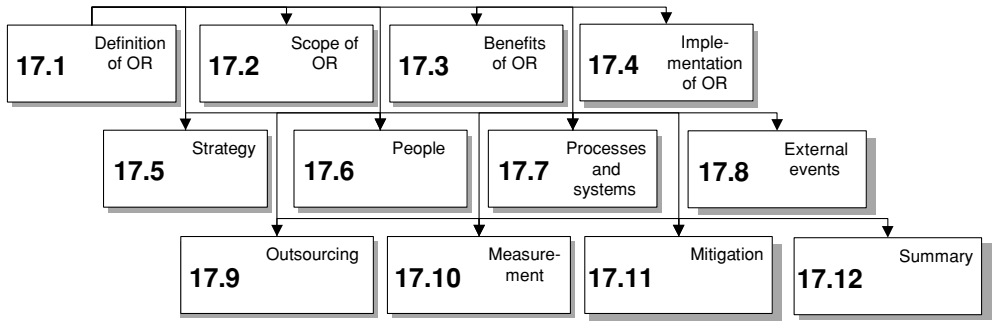


Figure 17.1 Structure of Chapter 17

- the 1988 Basel Accord, which describes the supervisory regulations governing the capital adequacy of internationally active banks and calls for the measurement and mitigation of operational risk;³ and lastly
- as a result of FSA initiatives responding to the Basel Accord.

The structure of this chapter is illustrated in Figure 17.1. The next chapter examines the third of the internal processes, called “technological risk”.

17.1 DEFINITION OF OPERATIONAL RISK

What is operational risk? It is difficult to flaw the logic of Peccia (2001) who states that, at a rudimentary level, running a business is concerned with employing people to carry out processes aided by technology and external dependencies to achieve defined business objectives. Hence, he argues, it makes sense to define operational risk as “the potential for loss due to failures of people, processes, technology and external dependencies”. The same “ingredients” are included in the definition provided by the Basel Committee⁴ and adopted here due to its broader acceptance, which states: “Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events” (Basel Committee on Banking Supervision 2004). While this definition has been produced for the banking sector, it has a broad application. The FSA (2002) correctly states that “ultimately firms need to decide for themselves what operational risk means to them” and any firm needs to “consider a more specific definition of operational risk that is appropriate to the range and nature of its business activities and its operating environment”. Hence businesses need to define operational risk in terms of their end product and the resources and processes engaged to produce that product.

³ Basel 2 (regarding the supervisory regulations governing the capital adequacy of *international active banks*) states: “A bank should develop a framework for managing operational risk and evaluate the adequacy of capital given this framework.”

⁴ The Basel Committee on Banking Supervision is a committee of banking supervisory authorities that was established by the central bank of governors of the Group of Ten countries in 1975. It consists of senior representatives of bank supervisory authorities and central banks from Belgium, Canada, France, Germany, Italy, Japan, Luxemburg, the Netherlands, Spain, Switzerland, the United Kingdom and the United States. It usually meets at the Bank for International Settlements in Basel, where its permanent Secretariat is located.

17.2 SCOPE OF OPERATIONAL RISK

The sources of risk considered to be embraced within the term “operational risk” are very considerable. The FSA Integrated Prudential Sourcebook consultation paper (Financial Services Authority 2001) describes operational risk as covering:

- Business risk which includes adverse changes to a firm’s market, customers or products, changes to the economic and political environments in which the firm operates and strategic risk which a firm faces if business plans, supporting systems and the implementation of these plans adversely affect the firm.
- Crime risk including potential theft, fraud and computer hacking.
- Disaster risk such as fires, floods and other natural disasters and terrorist activity.
- Information technology risk, including unauthorised access and disclosure, and data corruption.
- Legal risk including loss arising from legal action against it and from inadequate, incomplete or otherwise unsound legal documentation and practices.
- Regulatory risk relating to the lack of observance of rules set by a regulatory body.
- Reputational risk from negative publicity about its business practices or internal controls.
- Systems risk loss as a result of failure caused by the breakdown of business procedures, processes or systems and controls.
- Outsourcing.

The FSA definition of “business risk” described above includes market, economic and political risk. These risk sources are treated as separate classes of risk (within the risk taxonomy proposed in Chapter 11). Crime and information technology risk are not discussed in this chapter and are included under Chapter 18. Additionally legal risk (included within the Basel Committee’s definition of OR risk) is treated as a separate class of risk within the risk taxonomy proposed here. The rationale being that the FSA and Basel initiatives are aimed at the financial institutions whereas the taxonomy proposed here is for a broader audience. This greater subdivision enables a more balanced structure of risk breakdown to be created with the attendant benefits of description, resourcing and management. Where a particular class of risk is included within a taxonomy is of minor importance. The important issue is that risks are comprehensively identified, robustly assessed and proactively managed. If there is a relationship between different risk sources, that relationship will exist regardless of where the sources are placed within a taxonomy.

17.3 BENEFITS OF OPERATIONAL RISK

Operational risk management affords a business benefits by:

- Improving the ability to achieve its business objectives.
- Providing management the opportunity to focus on revenue generating activities rather than fire-fighting one crisis after another.
- Minimising day-to-day losses.
- Providing a more robust enterprise risk management system.
- Contributing to the establishment of a system, which enables the correlation of different classes of risk to be understood and, where appropriate, modelled.

17.4 IMPLEMENTATION OF OPERATIONAL RISK

The development of a sound system of operational risk management will depend on a number of issues such as:

- The risk management system not overly constraining risk taking, slowing down decision-making processes or limiting the volume of business undertaken.
- The implementers of the risk management framework being separate individuals to the managers of the individual business units.
- Risks being managed at an appropriate level in the organisation.
- The development of a culture which rewards the disclosure of risks when they exist, rather than encouraging managers to hide them.

17.5 STRATEGY

Figure 17.2 illustrates a possible taxonomy for strategy risk (an element within operational risk). This element is illustrated here as having seven attributes, each of which is described in turn below.

17.5.1 Definition of strategy risk

A business’s strategy is a business’s overall approach to achieving its objectives. Objectives are the results required within a particular timeframe, and results are the measure of performance.

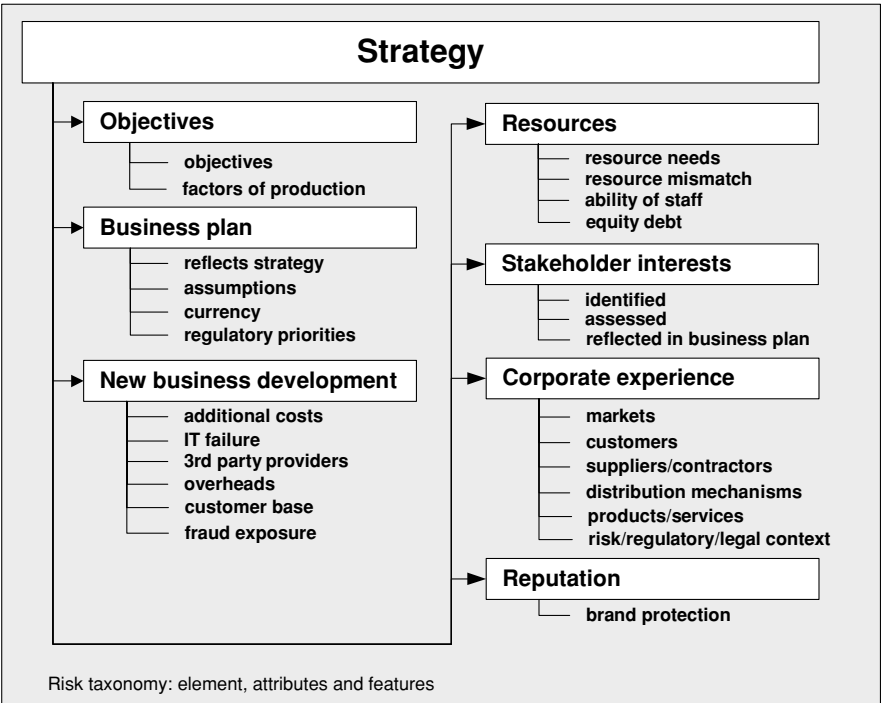


Figure 17.2 Taxonomy of strategy risk

Strategy is a description of what the business will do and the rationale behind it. For example, Virgin Mail Order's early strategy for music record sales was to compete in the market place by means of mail order (as its company name suggests), undercutting record sale prices offered by the existing well-established high street retailers. Adopting the wrong business strategy, failing to execute a well thought-out strategy or not modifying a successful strategy over time to reflect changes in the business environment are forms of operational risk. Strategic risk, then, may be defined as the risk associated with initial strategy selection, execution or modification over time, resulting in a lack of achievement of overall objectives.

17.5.2 Objectives

For a strategy to succeed the objectives must be clearly stated and understood. Objectives are the basis for work and the assignment of work. They determine the structure of a business, the key activities that must be undertaken and the allocation of people to tasks. So objectives are the foundation for designing both the organisational structure and processes of a business and the work of individual business units and individual managers. Drucker argues that objectives are always needed in eight key areas: marketing, innovation, human organisation, financial resources, physical resources, productivity, social responsibility and lastly profit requirements (Drucker 1983). He explains the need for these objectives by assessing the operation of a business. Drucker states that a business must first be able to create a customer. Hence there is a need for a marketing objective.

Businesses must be able to innovate, or else their competitors will make them obsolete. Hence there is need for an innovation objective. All businesses depend on the three factors of production – human resources, capital resources and physical resources. There must be objectives for their supply, their employment and their development respectively. The resources must be employed productively and their productivity has to grow if the business is to survive. There is need, therefore, for productivity objectives. Business exists in society and community, and, therefore, has to take responsibility for its impact on the environment. Therefore Drucker argues there is a need for objectives in respect of the social dimensions of business. Finally, he says there is a need for profit – otherwise none of the objectives can be obtained. They all attract a cost and the risk of potential losses which can only be financed out of the profits of the business. There are potentially five principal areas of risk associated with setting objectives. First, the objectives are not aligned to the strategy, second, they do not cover the key business areas, third, they are not SMART (see Section 10.8.1), fourth, management lacks experience in achieving similar objectives and lastly, the initial assessment of the risks associated with each objective is superficial.

17.5.3 Business plan

Business plans are prepared by all businesses regardless of maturity, to expand existing businesses. The business plan itself is a source of risk. It is intended to be a communication tool. The plan's ability to communicate the business strategy upon which it is based will determine the success of the strategy. The disciplines required to articulate the business's vision, mission, objectives and strategy (delivery plan) in a written document are a logical approach, rigorous analysis and clarity of thought. The business plan is required to "tell a story" and explain how the business will achieve its objectives in a comprehensive, coherent, consistent and cohesive manner. The plan should identify the market, its growth prospects, the target customers, the

main competitors, organisation, resources, social “fit” and all forecasts of critical success factors and measures. It must be based on a credible set of assumptions and should identify the assumptions to which the success of the business is most sensitive. These assumptions will be about the future size of the market, the economy, potential changes to the market, competitor behaviour and the ability of the business to deliver. These assumptions are potential risks. Hence the plan should record the risks facing the business arising from an understanding of the assumptions, how these will be addressed and the anticipated degree of success.

The plan will also record the risk management process for the risks identified against the objectives, as discussed in “Definition of strategy risk”, above. As the plan will be referred to not only for the initial business idea, but also for successive business decisions, it will require regular updating. For this reason the plan will have a long-term influence on the attainment of the business idea. There are therefore a series of potential areas of risk associated with creating and implementing a business plan. These include the plan not: readily articulating the strategy; explaining how the objectives will be accomplished particularly at start-up through short-term detailed operating plans, making the assumptions explicit; identifying the risks (and their responses) associated with the assumptions, taking account of regulatory priorities (if applicable); and updating the risks to the objectives or being regularly updated.

17.5.4 New business development

This risk category refers to the risks associated with plans for entering new business areas, expansion through mergers and acquisitions, providing new services and enhancing infrastructure (e.g. physical plant and equipment and information technology and networking). While competition places additional pressure on businesses to protect profitability through the development of new products and services, such activity attracts additional risks from: the lack of recovery of additional research and development or marketing costs; the failure of new information technology and the associated loss of reputation; poor performance by third-party providers; the overheads and staff costs from high-volume low-margin services outweighing the corresponding increase in profits; new services not attracting new customers or the new services attracting higher losses due to fraud or theft. The finance sector in particular is exposed to these types of risk. For example, financial sector businesses expanding internet banking services to include electronic bill payment services and increasing existing bank card issuing programmes significantly increase their risk exposure. Larger financial institutions often specialise in specific retail payments and invest in the resources and expertise to support high-volume transaction processing applications. Smaller financial sector businesses also compete in some retail payment segments through the use of advanced distributed information technology platforms and third-party service providers. Many retail payment system services are transaction intensive and priced competitively based on volume. Financial sector businesses wishing to compete in high-volume transaction-intensive retail services are required to make significant investments in information technology. Strategic plans should reflect these investments and link business-line goals and objectives with planned information technology enhancements. To mitigate strategic risk, management should have a strategic planning process that addresses its retail payment business goals and objectives, including supporting information technology components. As financial institutions often rely on third-party service providers for retail payment system products and services, the strategic plan should include a comprehensive vendor management programme. In summary strategic plans should demonstrate that management has assessed the risks and documented the business’s programme to mitigate them.

17.5.5 Resources

As discussed under Section 17.5.2 above, an objective for a business is to be innovative to differentiate itself from its competitors. Hence part of the business strategy will be to achieve, sustain and enhance competitive advantage. Some businesses are more successful than others because they have resources that are inherently different from those of their competitors, who may not be able to acquire or replicate similar resources. Businesses should therefore acquire or develop in-house such unique resources in order to attain competitive advantage. Resources will include capital, energy, raw materials, people, buildings, land and machinery. Additionally similar businesses may have identical resources but one business is able to outperform the other due to productivity. The risks to resources relate to: a lack of comprehension of resource needs to meet objectives; a mismatch between objectives and existing resources; a mismatch between production/sales projections and procurement of planned resources; experience, qualifications and technical ability of staff; and a mismatch between equity debt and spend profile. Human resources are discussed more fully under Section 17.6.

17.5.6 Stakeholder interests

Stakeholders are those individuals or organisations who can affect or be affected by the business. They include shareholders, lenders, employees, suppliers, business partners, customers, analysts and in some instances society at large. There should be a clear understanding of stakeholders' interests. A stakeholder analysis should be undertaken which identifies the primary and possibly conflicting expectations of the stakeholders and their power of influence. Stakeholders are likely to have conflicting interests or different priorities. Hence they should be recorded, disseminated, openly debated (when appropriate) and where possible aligned through negotiation. The agreed course(s) of action should be recorded and forwarded to the stakeholders, acknowledging where stakeholders' wishes have not been taken on board. Stakeholder requirements should be reflected in the business plan and where omitted could be the source of problems in the long term.

17.5.7 Corporate experience

A business's corporate experience will reflect on the risk exposure profile of the business's strategy. Issues reflecting corporate experience will include knowledge of markets, customers, suppliers, contractors, distribution mechanisms, products and services and the legal and regulatory/context/risk of the industry. This is not an exhaustive list and will vary depending on the service provided, market segment and the industry.

17.5.8 Reputation

One of the most valuable assets a business can have is its reputation. One, but significant, measurement of a business's reputation is its brand value. As discussed in the previous chapter, branding has value because it is a market growth tool. Successful branding can secure long-term competitive advantage. Customers can be persuaded a product is different from its rivals to such a degree that they believe the rival product(s) to be inferior (regardless of whether they are or not). While brand value can be protected by trademark legislation, any action a business takes or any statement it makes can add to, or eradicate brand value. Schmitt considers the

need to consider five interrelated aspects, to practise effective reputation management (Schmitt 2001). First, he considers reputation management needs to be broadly conceived as over the last decade the concept of branding has expanded from single products to the organisation as a whole such as the Guggenheim museum in New York, or well-known leading figures such as Virgin Group's Richard Branson (Branson 2002). Second, brand reputation is an ongoing undertaking and should not be confused with short-term crisis management. Third, the corporate brand has been discovered as an essential new marketing initiative. Businesses that traditionally focused on the branding of their individual products are now focusing on the organisation as a whole. Fourth, organisations need to take a unified approach to reputation management across the whole business by instilling the brand into its employees so they become familiar with it and practise it in their day-to-day activities. On every face of the organisation to the outside world, whether it be trade fairs, news conferences, or communication with the public, the message needs to be consistent. Lastly, as a result of the internet, brand protection almost needs to be real time, to cope with the new form of brand scrutiny. This requires effective management of the corporate website, links to other sites, selective presence on other websites and fast and adequate response to electronic queries. Schmitt also refers to the emergence of websites such as epinions.com,⁵ feedbackdirect.com and eComplaints.com,⁶ which capture and organise public concerns and allow customers to express their opinions, make suggestions and post their complaints online. The web enables customers to quickly and easily convey their concerns to a very broad audience in minutes.

Reputation erosion from single or multiple events can present a serious risk to a business. A poor reputation can impede the sale of goods or services, harm the recruitment of high calibre staff, deter desirable business partners and/or debt may become more expensive to obtain. Core value statements, which talk about trust and honesty, need to be shared and practised throughout an organisation. More and more consumers are interested in anything related to a brand from the ingredients of its products to an organisation's behaviour on environmental issues and beyond to a long range of other economic, social and political issues.

17.6 PEOPLE

A business must establish appropriate systems and controls for the management of people risk that may result from the actions of employees or the business itself. These systems and controls must be implemented throughout the duration of an employee's tenure with the organisation, beginning with recruiting and ending with the employee's resignation, retirement or termination. On the upside people can differentiate one organisation from another and are an important source of competitive advantage. Figure 17.3 describes a possible taxonomy for people risk composed of seven attributes each with their respective features.

17.6.1 Definition of people risk

People risk may be described as a combination of the detrimental impact of employee behaviour (which may occur anywhere on the continuum between profit erosion and business failure) and employer behaviour (which impairs employee efficiency, health and safety or loyalty). In simple terms, the impact of people risk can be described as having three levels of severity. At

⁵ www.epinions.com.

⁶ www.atnewyork.com/news/article.

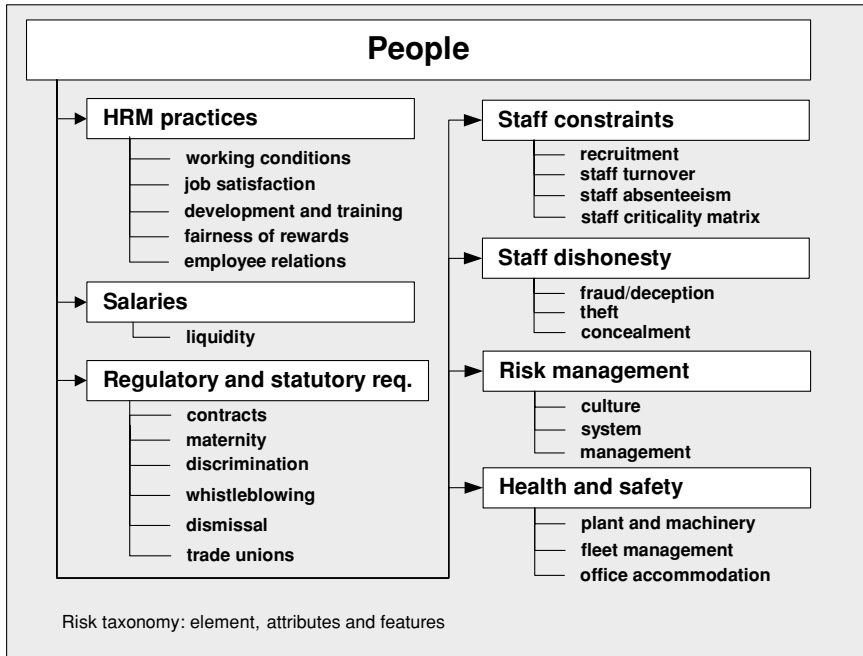


Figure 17.3 Taxonomy of people risk

the lowest level people risk may be defined as events which should they materialise would, in the short term, erode profitability, share value and or credit rating. At the second level risk events in the long term may have a detrimental impact on the business's wealth or reputation and in the worst case bring about the eventual collapse of a business, as a result of the conscious or unconscious actions of one or more employees.

17.6.2 Types of people risk

As employees have a high impact on business profitability, it is important to manage them effectively. The effectiveness of human resource management can be measured by absenteeism rates (staff constraint), labour turnover (staff constraint), accident rates (health and safety), productivity (management), quality of finished goods (management) and customer satisfaction (management). However, people risks are broader than solely efficient utilisation of employees, and typically result from HR management practices, late payment of wages/salaries, lack of compliance with statutory or regulatory requirements, staff constraints, dishonesty, corporate culture (which does not cultivate risk awareness), risk management or poor health and safety. Staff constraints occur when *either* companies cannot fill new critical positions because of shortages in particular trades or professions (compensation and other incentives not being sufficiently attractive to new candidates) *or* when staff retention is poor, leading to business disruption. Incompetence becomes an issue when employees lack the level of skills and knowledge to do their jobs correctly. Lack of professional training and development would further compound human errors. Dishonesty within a company can lead to fraudulent activities such as theft. Employees when representing the business, who discriminate against an individual

in terms of their age, sex, race, colour, religion, national origin or disability, either during recruitment processes or say selection of staff for promotion, transfer or bonuses, may attract litigation. The absenteeism rate, the frequency which employees miss work, will directly impact an organisation, which will incur direct costs and decreased productivity. Also corporate cultures that do not actively incorporate risk awareness, or encourage profits without regard to the methods used to make them can result in adverse employee behaviour.

17.6.3 HRM practices

Personnel management was previously understood to be the selection, recruitment and development of personnel in organisations. In the 1980s the term “human resource management”, an import from the USA, became to be used. This change in terminology according to some authors signalled a new way of undertaking the personnel management role: human resource management is a term which stresses the development of people as assets rather than describing their control simply in terms of a cost to be managed and placed people management at the strategic heart of business planning. HRM seeks to use the personnel policy areas of employee resourcing, employee development, employee relations and rewards within a broad strategic plan for the people part of the business in order to improve or sustain an organisation’s competitive advantage. Commentators are unclear if the adoption of this paradigm shift was universal. What is clear is that organisations adopt different human resource management strategies according to the threats and opportunities they face in their business environments (Tyson and York 1996). No one model of personnel management can meet all requirements. Personnel managers need to help to adapt their organisation’s HRM practices to the changing environment so that they can contribute to their organisational goals. HRM can contribute to the improvement of working conditions, the creation of job satisfaction, the development and training of employees, the maintenance of harmonious relationships and the fairness of rewards. It can also assist with the threats to organisations such as low productivity, unfair dismissals, absenteeism, accidents and social abuses such as bullying, stress induced by unrealistic workloads and sexual and racial discrimination.

17.6.4 Ability to pay salaries

Consideration of employee remuneration requires an assessment of the adequacy of the risk indicators and their ability to provide accurate and timely information upon which management can act. Payment of salaries is clearly a liquidity issue. The salary burden must be managed against the current and anticipated income and staff numbers balanced accordingly.

17.6.5 Regulatory and statutory requirements

Contracts

For a contract of employment to exist one person must employ another to perform a particular task as part of their business in a manner that they dictate. The ordinary principles of the law of contract apply. So in a contract of employment there must be an offer and an acceptance, which is in effect the agreement. There must be: an intention to create legal relations, consideration, capacity, consent of the parties and no mistake, misinterpretation, duress or undue influence. In addition the contract must not be illegal. It must accord with the legislation included in

Box 17.1 Employment legislation

| Individual/Issue | Examples of protective legislation |
|--|---|
| Age | Code of Practice on Age Diversity in Employment |
| Agency workers | Working Time Regulations 1998, National Minimum Wage Regulations 1999 |
| Carers | Maternity and Parental Leave etc. Regulations 1999 |
| Colour | Race Relations Act 1976 (RRA) |
| Disability | Disability Discrimination Act 1996 (DDA) |
| Employee representative status | Employment Rights Act 1996 (ERA) |
| Employees exercising a statutory right | ERA |
| Employees on fixed-term contracts | Fixed Term Employees (Prevention of Less Favourable Treatment) Regulations 2002 |
| Ethnic group | RRA |
| Gender | Sex Discrimination Act 1975 (SDA) |
| Gender reassignment | SDA |
| Health and safety representative | ERA |
| Marital status | ERA |
| Maternity | ERA and Maternity and Parental Leave etc. Regulations 1999 |
| Nationality | RRA |
| Parental status | Maternity and Parental Leave etc. Regulations 1999 |
| Part-time employees | Part-Time Workers (Prevention of Less Favourable Treatment) Regulations 2000 |
| Pregnancy | ERA and SDA |
| Race | RRA |
| Religion | Planned legislation |
| Reservists | Reserve Forces (Safeguard of Employment) Act 1985 |
| Sexual orientation | Planned legislation |
| Shop workers who refuse to work on Sundays | ERA |
| Trade union membership | Trade Union and Labour Relations (Consolidation) Act 1992 |
| Trustees of occupational pension schemes | ERA |
| Unfair dismissal | ERA |
| Whistleblowing | Public Interest Disclosure Act 1998 |
| <i>Source:</i> Osman (2003). | |

Box 17.1. Certain written particulars have to be given to the employee to accord with the Employment Rights Act 1996 (ERA). Employers must provide all employees (full or part time) with written particulars unless the employee has entered into a written contract with the employer containing all of the relevant terms.

Maternity

Under the ERA a pregnant employee who has on the advice of her doctor, midwife or health visitor made an appointment to obtain antenatal care must have the time off to keep it and she must also be paid. An employer who, acting unreasonably, does not give the employee these rights can be taken to a tribunal by the employee but this must normally be during the first three months following the employer's refusal. Employees with two or more years' service are entitled to maternity leave from the eleventh week before the birth with the right to return up to 29 weeks after the birth with statutory maternity pay (SMP) payable for 18 weeks plus paid time for antenatal care.

Discrimination

The number of employers subject of litigation arising from perceived or actual contravention of employment legislation governing discrimination has risen sharply in recent years. Discrimination is prohibited in relation to those protected regarding: recruitment, pay and benefits, promotion, training, terms and conditions, transfers, dismissal, action short of dismissal and any other detriment.

Whistleblowing

Employers have to take account of the relatively new form of influence on management, whistleblowing, which describes the practice of an employee metaphorically blowing a whistle to draw the attention of those outside of the business to some form of unethical practice inside the business. Previously this was done by individuals taking a personal risk with their employment. Post the enactment of the Public Interest Disclosure Act of 1998, workers who "blow the whistle" about any wrongdoing within their employer's organisation are protected (as far as the "umbrella" of the Act extends). The provisions within the Act protect workers from being subjected to what it calls "a detriment" by their employer. The DTI guidance⁷ states that "detriment may take many forms such as denial of promotion, facilities or training opportunities which the employer would otherwise have offered". Additionally employees who are "protected" by the provisions may make a claim for unfair dismissal if they are dismissed for making a protected disclosure. A qualifying disclosure will be a protected disclosure where it is made to the worker's employer or to a person whom the worker reasonably believes to be solely or mainly responsible for the relevant failure. Particular kinds of disclosures qualify for protection which are termed qualifying disclosures. Qualifying disclosures are disclosures of information which the worker reasonably believes shows that one or more of the following issues is currently taking place, previously took place or is likely to happen in the future: a criminal offence; the breach of a legal obligation; a miscarriage of justice; a danger to health or safety of any individual; damage to the environment; or the deliberate concealment of information tending to show any of the issues just referred to.

Dismissal

Dismissal of a member of staff is never just about managing one individual. Methods of dismissal become part of a business's culture and can modify the behaviour of remaining staff

⁷ Employment Legislation. Disclosures in the public interest: protections for workers who "blow the whistle" (PL502 Rev 2) <http://www.dti.gov.uk/er/individual/pidguide-pl502.htm>.

and in the wider context, if a trend emerges, can increase or decrease the attractiveness of the business to potential employees. The risk for any employer in releasing a member of staff is not adhering to the prevailing legislation relating to wrongful and unfair dismissal. An employee can claim that they were wrongfully dismissed in a common law action for breach of contract in the civil courts or in an industrial tribunal. This is relevant where the employee claims that the employer did not dismiss him or her in accordance with their contract. An example of this type of claim is where the employer had failed to give proper notice as recorded in the contract. The amount of the compensation or damages awarded would normally aim at placing the employee financially in the position in which they would have been had the wrongful dismissal not taken place. Additionally businesses have to be mindful of not being guilty of unfair dismissal. Since the Trade Union and Labour Relations (Consolidation) Act of 1992 as amended by the Employment Rights (Dispute Resolution) Act 1998 employees have the right not to be unfairly dismissed. The grounds for classifying dismissal as being unfair as defined by the Act include employees taking or seeking maternity, paternity or adoption leave; requesting flexible working arrangements; seeking to assert a statutory employment protection right; taking or proposing certain types of action on health and safety grounds; performing or proposing to perform duties relevant to his or her role as an occupational pension scheme trustee; and so on.

Trade unions

The change in how businesses deal with unions has been brought about by the changing political, economic and industrial context in which businesses trade and not in a shift in management ideology (Pinnington and Edwards 2000). Politically the Conservative government, elected in 1979 with Margaret Thatcher as prime minister, was committed to reducing union power which it saw as one of the primary causes of Britain's poor performance internationally. Consequently, the government through numerous pieces of legislation between 1979 and 1997 restricted the ability of the unions to take industrial action and regulated their internal affairs in a way that the law had not previously done. The government also reduced the influence of the unions in the public sector particularly at its intelligence centre known as GCHQ.

17.6.6 Staff constraints

While it might seem self-evident that businesses have to attract and retain staff for business development, as Peter Drucker has said:

Any experienced executive knows companies or industries [are] bound for extinction because they cannot attract or hold able people. Every experienced executive also knows that this is a more important fact about a company or an industry than last year's profit statement. Any logician who tried to tell an executive this statement, being incapable of unambiguous definition, is a "nonstatement" dealing with a "nonproblem", would be quickly – and correctly – dismissed as an ass. (Drucker 1983)

All organisations now say routinely, "People are our greatest asset." Yet few practice what they preach, let alone truly believe it. Most still believe, though perhaps subconsciously, what nineteenth-century employees believed: people need us more than we need them. But, in fact, organisations have to market membership as much as they market products and services – and perhaps more. They have to attract people, hold people, recognise and reward people, motivate people, and serve and satisfy people. (Drucker 1992)

Recruitment

The recruitment process will have a direct impact on the quality of the staff employed, the future retention of existing valued client relationships (and associated repeat business) and with staff retention. There is a direct correlation between recruitment and the success of a business. The key aspects of recruitment are: recruiters, job analysis, job descriptions, interviews, selection, induction and integration.

Recruiters: The effectiveness of the recruitment process will be influenced by the behavioural characteristics of the recruiter in terms of whether they are personable, enthusiastic and competent. Other desirable qualities of the interviewer include humility, maturity, the ability to think objectively and freedom from overtalking and extreme opinions. The risk exists that a new person in the HR department or a line manager may be given a recruitment assignment, before that individual has been given interview training. In addition novice recruiters may not be aware of the mission, goals, structure and services/products of the organisation, the job requirements and the corresponding experience required. The business will be exposed to poor selection if the interviewer does not establish an interview plan, maintain rapport, be an active listener, pay attention to non-verbal clues, provide honest and full answers to questions, use questions effectively, split facts from inference, oversell the position, does not control the interview, consistently ask the same questions of all candidates and avoid biases and stereotypes. One typical bias is for interviewers to consider candidates who have interests, experiences and backgrounds similar to their own to be more acceptable. Stereotyping involves forming generalised opinions of how people of a given gender, race or ethnic background think, feel and act. A further trap is the influence of “beautyism”, discrimination against unattractive persons is a persistent and pervasive form of employment discrimination.

Job analysis: Gaining a clear understanding of the full extent of the role that an organisation wishes to fill is critical to describing the job description to match that role. When analysing a job through *job analysis*, an organisation needs to understand: the *roles* the job holder has to fill; the *tasks* the job holder will have to do; and the *skills* the job holder will need to carry out to complete the tasks allocated to the role. The procedure of job analysis involves undertaking a systematic investigation of jobs by following a number of predetermined steps specified in advance of the study. When completed, job analysis results in a written report summarising the information contained in the analysis of somewhere between 20 and 30 activities. HR managers will use this data to develop job descriptions. *The ultimate purpose of job analysis is to improve organisational performance and productivity.* Job data may be obtained in several ways. The more common methods of analysing jobs are through interviews, questionnaires, observation and diaries. Several different job analysis approaches are used, each with specific advantages and disadvantages. Three of the more popular methods are functional job analysis, the position analysis questionnaire system and the critical incident method (Sherman *et al.* 1998).

Job descriptions: Job descriptions are a valuable tool in performing HR functions. To be effective job descriptions must use statements that are terse, direct and simply worded. Several problems are frequently associated with these documents, including:

- being poorly written, using vague rather than specific terms;
- providing little guidance to the job holder;
- not updated as the job duties change;
- violate the law by containing aspects not related to job success;

Box 17.2 Realistic job descriptions

The importance of the management of expectations is explained in an article written by Wyche, who describes British Airways' approach to their recruiting difficulties in the early 1990s. At the time British Airways (BA) had the largest centralised commercial recruitment operation in the United Kingdom, recruiting nearly 5000 people each year. For some time BA had been finding it increasingly difficult to find skilled recruits in areas such as information technology, finance and engineering. In addition there had been a clear downturn in the supply of skilled young people. All of these trends were occurring side by side and concurrently with a demand for skilled labour driven by business growth. The widening gap between supply and demand led BA to create a recruitment marketing team. In addition BA established quality standards for the marketing team, developed different training programmes for line managers to help increase their understanding of the market place and engaged an advertising company to assist the recruitment drive. In their efforts to promote BA as the first choice among employers, the recruitment department made special efforts to maintain the delicate balance between projecting the genuine opportunities of working for a company of the size and diversity of BA, and the tendency to paint too rosy a picture of the realities of working within a large organisation. This was seen as especially important since retaining talented employees in a diminishing labour market was perhaps more important than attracting them in the first place.

Source: Wyche (1990).

- limit the scope of the activities of the job holder providing unnecessary constraints; and
- being economic with the truth and only portray the favourable aspects of a position.

On this last point, Sherman *et al.* consider that organisations may be able to increase the effectiveness of their recruitment efforts by providing job applicants with *realistic job previews* (RJPs). An RJP informs applicants about all aspects of the job, including both its desirable and undesirable facets. Proponents of the RJP believe that applicants who are given realistic information regarding a position are more likely to remain in the position and be successful, because there will be fewer unpleasant surprises (see Box 17.2). When there are skill shortages the recruitment process takes on even greater significance.

Interviews: Interviews remain the mainstay of the selection process; however, they can be plagued by problems of subjectivity and personal bias.

Selection: Selection must contain a screening process to establish the fitness and propriety of employees including their honesty, integrity, reputation, competence, capability and financial soundness. Screening should be more stringent for employees that will occupy positions of high personal trust (for example, security administration, payment and settlement functions); and people occupying positions requiring significant technical competence (for example, geologists and pharmaceutical research scientists).

Induction of employees: A risk to any business is a poor induction process. It seldom receives the very careful attention it deserves. It makes good sense to help new recruits to integrate into their new surroundings and hence become as efficient and effective in their work as quickly

as possible. Failure to do so can, at the very least, lead to erratic progress and at the other extreme the possible loss of customers. Inadequate induction is also recognised as a significant contributor to turnover during the first year of employment. The problems of social adjustment that newcomers have to face are simply not appreciated or sympathetically handled. Newcomers experience loneliness and a sense of disorientation when coping with unfamiliar surroundings. The format and content of an induction programme will vary according to the size and type of organisation and the existing knowledge, experience and seniority of the recruit. It often consists of two stages: organisationwide induction followed by business unit induction. The purpose of induction is to ensure that new employees (IM 1999):

- are integrated into their working environment as quickly as possible;
- learn the relevant aspects of the organisation's mission, culture, policies, procedures and methods of working;
- become productive and well motivated;
- become aware of the skills and knowledge needed for the job; and
- understand their responsibilities.

Induction of directors: A more significant risk to a business is the poor induction of its directors. Newly appointed directors need to be inducted efficiently so that they can quickly familiarise themselves with the company's activities and begin to apply their skills and experience, for which they have been appointed, for the benefit of the company and its shareholders.

The need for a proper induction process for this purpose has long been recognised: the Cadbury Report made it clear in 1992 that newly appointed board members are entitled to expect proper induction into the company's affairs. Despite this recognition, a telephone survey carried out in 2002 for the Higgs Review found that less than a quarter of non-executive directors received a formal briefing or induction after appointment (Higgs 2003). Commenting that the current position is not acceptable, the Higgs Review concluded that companies must set aside adequate resources and ensure that sufficient time is available for a thorough induction of new directors. It is recommended that the chairman should take the lead in providing a properly constructed induction programme, which should be facilitated by the company secretary.

The Higgs Review suggested that each company should develop its own comprehensive formal induction programme tailored to the needs of the company and individual directors. It recommended that a combination of selected written information should be made available together with presentations, meetings and site visits to provide new appointees with a balanced real-life overview of the company. The Review also suggested that the induction process should contain three main elements:

- Build an understanding of the nature of the company, its business and the markets within which it operates covering:
 - the company's products or services;
 - group structure including subsidiaries and joint ventures;
 - the company's constitution, board procedures and matters reserved for the board;
 - summary details of the company's major risks and management strategy;
 - key performance indicators; and
 - regulatory constraints.
- Build a link with the company's people including:
 - meetings with senior management;

- visits to company sites other than headquarters, to learn about production or services and meet employees in an informal setting; and
- participating in board strategy development.
- Build an understanding of the company's main relationships, including meeting the auditors and developing a knowledge of in particular:
 - who are the major customers;
 - who are the major suppliers; and
 - who are the major shareholders and what is the shareholder relations policy – participation in meetings with shareholders can help give a first-hand feel as well as letting shareholders know who the non-executive directors are.

The Institute of Chartered Secretaries and Administrators (ICSA) worked closely with the Higgs Review team on the creation of that checklist, in order to keep it brief and to the point. The ICSA has produced and undertaken to maintain on their website (www.icsa.org.uk) a guidance note detailing a full list of appropriate induction material. The guidance note describes “essential information to be provided immediately” which is subdivided under three headings: “Directors’ Duties”, “The Company’s Business” and “Board Issues”. It also describes “Additional material to be provided during the first few months” and “Additional information which the company secretary might consider making the director aware of”.

Staff turnover

Regardless of technological change, the risk of staff turnover will always haunt enterprises. The loss of key personnel within, say, research and development departments of pharmaceutical businesses; information technology and software houses; high-profile design consultancies; prominent advertising agencies; and leading edge technology manufacturers, can be particularly debilitating. The loss of key personnel has led to the abandonment of the development of projects and new products as the holder (or holders) of the knowledge to bring these products to the market place has walked out of the door. Many personnel experts believe that the majority of employee resignations occur for common, easily recognisable and avoidable reasons. While there is no specific list that can help an employer in any one industry, there are common reasons why people leave a place of employment. Managing staff turnover must be part of managing a business to secure its continued growth and wealth creation. The widely recognised benefits of managing turnover include:

- retention of top performers critical to the success of the business;
- retention and development of the organisation's knowledge base;
- retention of information which would be useful to a competitor;
- a reduction in advertising and recruitment agency costs;
- improved employee morale;
- a reduction in the time managers are diverted away from activities directly contributing to business creation;
- a reduction in the amount of time existing staff spend in inducting and training new staff; and
- a reduction in the time that staff are not fully productive in terms of those working their notice or new arrivals.

The most cited reasons for turnover include alternative employment opportunities, pay and compensation, the lack of perceived fairness of the distribution and the equity of rewards such as

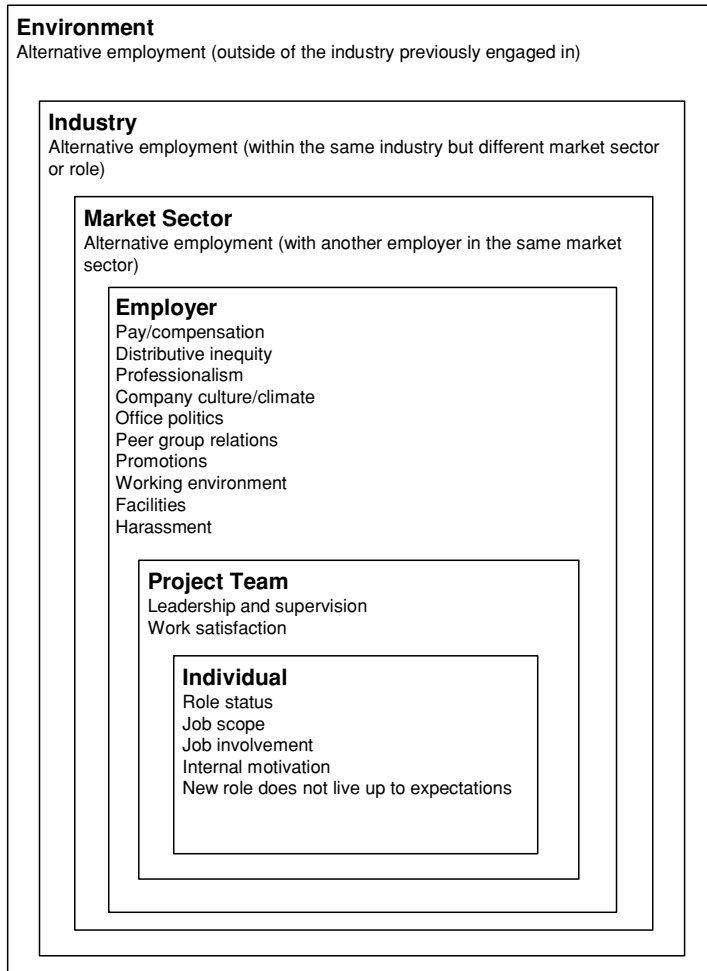


Figure 17.4 Systems perspective of sources of turnover

bonuses, lack of professionalism, inadequate communication of the responsibilities of the role, the culture of the organisation in terms of overall management, degree of office politics, poor peer group relations, lack of promotion opportunities, inadequate working environment and facilities and harassment. This is not an exhaustive list. In addition an individual normally leaves an organisation for a combination of reasons and usually not just, say, an increase in salary.

By taking a simple systems perspective (see Figure 17.4), it is easier to understand the source of the catalysts of staff turnover and how they may combine to lead to a member of staff to leave and join a new employer, join an agency as a freelance consultant or commence their own business (Chapman 2002).

Ostergen (1989) carried out a study of “key persons” in “knowledge-intensive firms”. She defined key persons as people with technical and managerial roles and she chose computer businesses as her subject firms. Ostergen interviewed a number of key persons in a variety of

Box 17.3 Loss of key personnel

1. The first loss is that of human beings, we can call it “mass-escape”. When some of the key persons leave the firm to start something of their own, a lot of people feel that it’s safer to go with them than to stay at the disintegrating firm. Another reason why a great number of people follow these key persons is because they feel the pressure from the group.
2. Besides “mass-escape” the firm will lose markets when several people leave the firm, let’s call it “market-escape”. Often a customer prefers to keep the consultant instead of hiring a special firm. Hence, if the consultant quits, the firm loses his customer.
3. A third kind of escape is “technology-escape”, i.e. the employee’s knowledge will vanish and also future progress in this area.
4. We can also mention “legitimacy-escape”. The firm loses goodwill. It’s not strange that rumours circulate when staff leave. This can lead to problems both when the firm recruits staff and when it sells its services.
5. Last we can discuss “culture-escape”. When staff leave, it’s possible that the atmosphere will change and result in a new culture.

Source: Ostergen (1989).

firms and categorised the different types of direct and indirect consequences suffered when key persons leave these “knowledge-intensive firms”, see Box 17.3.

Staff absenteeism

How frequently employees are absent from their work – the absenteeism rate – is also directly related to HR planning and recruitment. When employees miss work, the organisation incurs direct costs of lost wages and decreased productivity. It is not uncommon for organisations to hire extra workers just to make up for the number of absences totalled across all employees. In addition to those direct costs, there are indirect costs that may underline excessive absenteeism. There will always be some who must be absent from work because of sickness, accidents, serious family problems or other legitimate reasons. However, chronic absenteeism may signal some deeper problems in the work environment.

Mitigation: While an employer may find that the overall absenteeism rate and costs are within an acceptable range, it is still advisable to study the statistics to determine if there are patterns in the data. Rarely does absenteeism spread itself evenly across an organisation. It is very likely that employees in one area (or occupational group) may have nearly perfect attendance records, while others in a different area may be absent frequently. By monitoring these differential attendance records, managers can assess where problems might exist and more importantly begin planning ways to resolve or improve the underlying causes. Employers look at “stick and carrot” regimes where progressive discipline procedures are applied to employees having a recurring record of absenteeism whereas incentives are provided for perfect attendance.

Staff criticality matrix

A staff criticality matrix can be developed which will show visually which individual is carrying out a critical task during any one phase of an activity and hence whose unplanned or unexpected

Box 17.4 Staff criticality matrix

| Task | Importance ranking | | | |
|--------------|--------------------|---------|---------|---------|
| Synthesising | 6 | | | |
| Coordinating | 5 | | | |
| Analysing | 4 | | | |
| Compiling | 3 | | | |
| Copying | 2 | | | |
| Comparing | 1 | | | |
| | Phase A | Phase B | Phase C | Phase D |
| Employee A | 6 | 4 | | |
| Employee B | 5 | 5 | 5 | 5 |
| Employee C | 1 | 1 | 2 | 3 |
| Employee D | 1 | 1 | 2 | 3 |

departure could threaten the completion date of the overall activity. In this way consideration can be given to the proactive measures to be taken to compensate for the loss of a key member of staff at a critical moment in the completion of an activity.

The example above in Box 17.4 describes an activity that is composed of four phases and requires four different individuals to carry out separate interlinked tasks to complete the activity to meet the required timeframe. The tasks range from “Comparing” through to “Synthesising” and they have been ranked in order of importance to completing the activity, where 1 is the least important and 6 is the most important (Box 17.4).

17.6.7 Staff dishonesty

One of the most prominent cases of dishonesty was the fraudulent activity of Nick Leeson, who through his actions brought about the demise of the 233-year-old Barings Investment Bank. Leeson was the chief derivatives trader at Barings managing an operation in futures markets on the Singapore Monetary Exchange (SIMEX) buying and selling derivatives futures pegged to the Nikkei 225, the Japanese equivalent to the UK’s FTSE 100. He ran up liabilities of \$1.3 billion hidden in his “88888” account which was more than the entire capital reserves of the bank. Investors saw their savings wiped out and some 1200 employees lost their jobs. Dutch Bank ING agreed to assume nearly all of Barings’ debt and acquired the bank for the princely sum of £1. In December 1995 a court in Singapore sentenced him to six and a half years after pleading guilty to two counts of deceiving the bank’s auditors and of cheating the Singapore exchange. The aftershocks of Barings’ fall prompted a complete overhaul of financial regulation in the City of London and a re-examination of risk controls by investment banks.

17.6.8 Risk management

The effectiveness of operational risk management and its contribution to securing a business’s objectives will be directly proportional to the way it was initially established and how it has been subsequently maintained.

Risk management culture

Business *culture*, expressed in simple terms, is a business's accepted way of doing things. Risk management *culture* is a subset of business *culture*. It is the pervasive business-wide view of how risk management should be implemented. It is all about beliefs, attitude, judgement, approach and outlook, which manifests itself through employee behaviour. It is an all embracing term which covers an array of issues such as board promotion of risk management, working methods, appetite for risk, lines of reporting, the delegation of responsibility and the frequency of reporting. Culture will dictate whether risk management is considered an administrative burden, a task to be undertaken to satisfy regulatory requirements or a process to improve the chance of securing the business's objectives. Most importantly a business's risk management *culture* encompasses the general awareness, attitude and behaviour of its employees to risk and the management of risk within the organisation. Hence an organisation's risk management *culture* can be considered a measurement of how successfully risk management has been embedded within that organisation. Indicators of a prevalent risk management culture are leadership, sponsorship, risk management system, allocation of responsibilities, reporting, training, assessment of effectiveness and approach to continuous improvement. The answers to the following (and similar) questions will determine the nature of an organisation's risk management culture. This is a very small sample of review questions the author has prepared for evaluating cultures.

- Which executive is responsible for OR?
- What is the role of the audit function in overseeing OR?
- What is the role of non-executive directors in the execution of OR?
- What are the objectives of the risk management process?
- Is a training and education programme established for each level in the business, which has a duty to identify, assess and report risks to management?
- Has a risk management system been established?
- Is the framework applied at all levels of the organisation?
- Is there a database of losses to inform ongoing risk identification and assessments?
- Is guidance provided on how to assess potential operational risks against expected profits, when making significant business decisions?
- Is there guidance on the retention of records of risk identification, assessment, evaluations, response planning and management?
- Is the risk culture maintained?
- Is a format for reports described to ensure the results are easy to understand and quick to assimilate?
- Has senior management acceptable levels of exposure to specific risk types?
- How is the OR process benchmarked?
- What process is adopted to secure continuous improvement?
- Is there consistency between the reward structure for staff and the risk culture?

System

The level of maturity or sophistication of a business's risk management *system* will influence the effectiveness of risk management within the business. But what do we mean by risk management *system*? The term *system* is used here as the collective noun for the group of "action plans" known as *strategy*, *policy*, *framework*, *process* and *profile*. While the literature

on operational risk refers to these terms, descriptions are brief and/or inconsistent. The meaning adopted here is as follows:

- *Risk strategy* is a description of the overall objective of the risk management process, normally expressed in terms of its contribution to the business objectives.
- *Risk framework* is the overall plan of implementation of risk management, which includes a combination of the scope, policy, profile and process. This description is consistent with the Basel 2 description of a framework which states: “The framework should cover the bank’s appetite and tolerance for operational risk, as specified through the policies for managing this risk, including the extent and manner in which operational risk is transferred outside the bank. It should also include policies outlining the bank’s approach to identifying, assessing, monitoring and controlling/mitigating the risk” (Basel Committee on Banking Supervision 2004, item 737, p. 161). It is also consistent with the M_o_R definition of a framework, which it considers spans such issues such as policy and process (where process is understood to consist of: identification, assessment, ownership, reporting, responding and management) (M_o_R 2002). Frameworks are not static documents and must be updated to reflect significant changes to a business’s organisational structure, outsourcing arrangements, products or services, operating environment, acquisitions or mergers, geographical area of operation, funding arrangements and customer base. This should cover issues such as:
 - Are the objectives of the *framework* clearly stated?
 - Does the *framework* state how OR contributes to corporate governance?
 - Does the *framework* contribute to securing the business objectives?
 - Does the *framework* influence decision making?
 - Is the vocabulary adopted within the *framework* explained?
 - Is the *framework* comprehensive, describing the risk *scope*, risk *policy*, risk *profile* and risk *process*?
 - Is the *framework* sufficiently clear and is the vocabulary adopted used consistently?
 - Has the *framework* been explained to the board, business department heads and line management, and is it understood?
 - Does the *framework* state the risk taxonomy adopted and hence the elements, attributes and features being addressed?
 - Is an individual or a committee assigned the responsibility of maintaining the *framework*?
 - Does the *framework* state how risks are quantified?
 - Does the *framework* (depending on the business of the firm) state how the regulatory capital to be set aside for risk losses is to be calculated?
 - Has an independent review of the *framework* been undertaken to evaluate it against best practice?
- *Risk policy* is a statement of the operational risks that the firm is prepared to accept and those that it is not prepared to accept and where possible the acceptance threshold (the firm’s risk appetite/tolerance). The policy should describe the business’s appetite for all classes of risk and their corresponding elements otherwise the policy will be too broad and difficult to administer.
- *Risk profile* describes the types (classes and elements) of operational risk that are faced by the firm and its clients and its exposure to those risks.
 - Has a risk taxonomy been prepared which has been tailored to the business’s operating context?
 - How frequently is the profile reviewed and updated?

- Is the profile used in the risk identification process?
- How is competition in the market place monitored?
- How is regulatory compliance monitored?
- How is consumer behaviour monitored?
- Is sales of the business's products or services immune from changes in the economy or do sales mirror economic upturns/downturns?
- *Risk process* consists of how the firm intends to identify, assess and evaluate its operational risks; risk response planning and management together with the allocation of owners, managers and actionees; the method of deriving internal capital allocation from operational risk assessments, the allocation of responsibilities for managing and implementing the process, the establishment of thresholds for particular operational risks (based on predetermined risk appetite/tolerances) which when reached trigger a response (review and management action); guidance on how boundary risks would be treated, incident management and escalation requirements, reporting requirements, definition of the terms used and quality assurance requirements.
 - Is it clear who has responsibility for risk identification, assessment, evaluation, response planning and management?
 - Are new services and products critically evaluated for their risk exposure?
 - Are contracts with customers and third parties evaluated for risk ownership?
 - Are risk management models and assessment tools independently checked?
- *Risk exposure* relates to the extent of operational risk faced by a firm and is usually expressed in terms of either the likelihood and impact of a particular type of operational loss such as fraud or the aggregated impact of all of the risks identified.
- *Risk scope* refers to the risk categories included in the bespoke risk taxonomy and hence the risks that will be addressed in the OR risk identification process.

Management

The success or otherwise of the operational risk management *system* will be influenced by the way in which the following series of issues are addressed: creation of an OR *framework*, integration of the *framework* with corporate governance of the firm as a whole and management through the allocation of responsibilities. Having an OR framework is not an end in itself. The answers to the following (and similar) questions will determine the effectiveness of the management processes. This is a very small sample of review questions the author has prepared for evaluating OR frameworks.

- *Risk process*: The degree of robustness of the risk management process will also directly influence the effectiveness of an OR system. Robustness will depend on whether the process represents a logical sequence of activities involving: comprehensive identification (with no blind spots); realistic assessment (which resembles reality as closely as possible); appropriate evaluation methods (which remove double counting, reflect correlation between risks, take account of interrelationships and assign appropriate probability distributions to risks); evaluate appropriate responses and actively drive through risk response actions. Risk identification needs to be vigorous. The business's end-to-end operating cycle needs to be examined for the sources of risk or where construction projects have been commissioned, the project lifecycle. The data used for identification and assessment needs to be examined for its integrity (honesty), relevancy and sufficiency. Robustness will be influenced by

the timeliness of the process – how frequently: risk registers are updated, risk assessments are revalidated and the success or otherwise of risk actions are monitored. Companies that proudly announce in their annual reviews that they review their operational risks once a year have obviously lulled themselves into a false sense of security or their risk management aspirations do not go beyond responding to regulatory pressures and obtaining a “tick in the box”.

- **Enforcement:** HR procedures and processes can be used in a direct way to embed a risk management system. It can be enforced by a series of measures such as employee’s contracts of employment, induction, risk management training, appraisals and performance reviews. Contracts of employment can make explicit the statutory and regulatory content of the firm and its risk profile. They can include reference to those actions of an individual that would lead to either disciplinary action or termination of the contract. These could be actions that would be harmful to the business in terms of solvency, reputation or customer relations, attracting legal proceedings and/or invoking regulatory sanctions.
 - Are risk management responsibilities (in line with the *framework*) included in job descriptions?
 - Are the ramifications of a lack of adherence to risk management responsibilities included in terms of employment?
 - Are employees (including new board members and non-executive directors) introduced to the OR *framework* during induction?
- **Risk training:** Risk training answers the question of why, how, when and who. Training increases comprehension of the risk management system by providing: an understanding of the objectives and benefits; comprehension of the terminology; familiarity with the process; and the ramifications of inactivity. Knowledge can increase the willingness to participate, apply the process and take the initiative to improve understanding and efficacy of the process.

Training and development for non-executives

Boards face the risk that non-executive directors are ill equipped and have insufficient expertise to fulfil their obligations as members of a unitary board. The survey completed by the Higgs Review revealed that two-thirds of non-executive directors and chairmen had not received any training or development. The Review explains that in this context the word “training” means continued professional development. The Review stated that for existing directors, knowledge of issues such as strategy, management of human and financial resources, audit and remuneration can often usefully be updated and expanded with updates on legal and regulatory obligations being helpful. The survey also found that some non-executive directors were concerned about the increasing amount of knowledge necessary in order to fulfil their roles on board committees. As mitigation, following the recommendation of the Review, non-executive directors should regularly appraise their individual skills, knowledge and expertise and determine if tailored professional development would help them develop their expertise and meet their board obligations.

- Are employees informed of corporate governance requirements, the Combined Code and the Listing Rules?
- Is the training refreshed at regular intervals?
- Does the training cover the entire system, including identification, assessment, evaluation, response planning and management?

- Are staff appraised of in-house quantification methods (where developed)?
- Is the risk management framework readily accessible on the company intranet?
- Are the risk indicators and the risk indicator templates saved on the intranet?

17.6.9 Health and safety

Businesses commonly are faced with a multifaceted health and safety task as a result of a number of different workplace “environments” relating to (for example) plant and machinery, fleet management and office accommodation. The Health and Safety Commission (HSC) and the Health and Safety Executive (HSE) are responsible for the regulation of almost all the risks to health and safety arising from work activity in Britain. Their collective mission is to protect employees’ and the public’s health and safety by ensuring risks in the workplace are properly controlled. The HSE and HSC look after the health and safety in nuclear installations, mines, factories, farms, hospitals, schools, offshore oil and gas installations, the national gas grid, the movement of dangerous substances, railway safety and other aspects of the protection of both employees and the public. Local authorities are responsible to the HSC for the enforcement of health and safety in offices, shops and other parts of the service sector. Health and safety management while being a statutory requirement for businesses can be used to increase operational efficiency, enhance working environments and improve financial performance. The HSE statistics show that there were 235 fatal injuries and 159 809 other recorded injuries in the period 2003/2004.⁸ Additionally in the same period, 30 million working days were lost due to work-related ill health from 2.2 million people suffering from an illness which they believed was caused or made worse as a result of their current or past work. There are obvious benefits for both employees and employers if injuries and ill health are reduced. Effective health and safety management clearly helps reduce the unacceptable toll of suffering, anguish and disabilities that accidents and ill-health bring. For the businesses, compliance with legislation and the implementation of robust health and safety practices minimises the likelihood of prosecution and penalties, reduces disruption to operations, affords the opportunity of achieving a cost effective and efficient use of resources and reduces the incidence of litigation.

17.7 PROCESSES AND SYSTEMS

A business should establish and maintain appropriate systems and controls for the management of operational risks that specifically arise from failures or inadequacies in management processes and systems. These systems and controls commonly span a business’s end-to-end operating cycle. Hence they need to reflect the sequence of activities undertaken, be integrated, reflect customer requirements and be regularly updated to reflect changes in the market place. Figure 17.5 describes the structure of Section 17.7 and a possible taxonomy of the process and system element of operational risk.

17.7.1 Definition of processes and systems risk

Process and system risk may be defined as the failure of processes or systems due to their poor design, complexity or non-performance, giving rise to operational losses. As a result a business may experience a wide range of problems including inability to meet orders, poor

⁸ Source of statistics: www.hse.gov.uk.

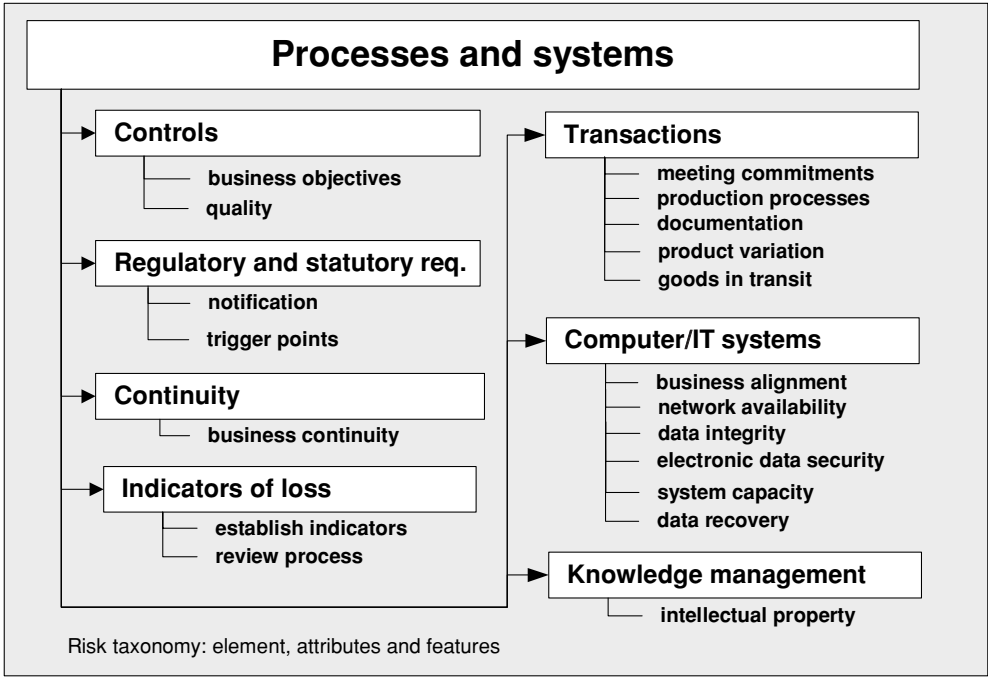


Figure 17.5 Taxonomy of processes and systems risk

quality control, settlement processing errors, fraud and information security failure. As the result of the increasing reliance on company-wide computer systems, IT now has the potential to transform risks from minor manual processing errors to major disruptions, simultaneously stopping hundreds of individuals from working.

17.7.2 Controls

While it is not made explicit in dictionary definitions, controls in a business sense is not the plural of control. Perhaps the best way to describe the distinction between the two is that controls pertain to means and control to an end. Not only do more controls not necessarily give more control but the two words have different meanings altogether. The synonyms for controls are measurement and information. The synonyms for control are direction and constraint. Controls relate to recording events in the past. Control deals with providing strategic direction, future events. Hence financial controls relate to recording past financial events to provide the controllers with information to decide about future direction. Accordingly controls have an important time element. Like a ship, a change of direction or stopping an activity requires considerable advance warning. Late information minimises available options. There are three major characteristics of controls in business enterprise (1) controls can neither be objective nor neutral, (2) controls need to focus on results and (3) controls are needed for measurable and non-measurable events. Economic communication requires standardisation of controls so that finance, marketing and business development, for instance, are structured and formatted in exactly the same way, so that information across departments can be readily combined, assessed and trends established.

The risk associated with controls is their lack of quality. If they are not economical, meaningful, appropriate, congruent, timely, simple and operational, they will hinder rather than improve management. The less effect needed to gain control, the better the control design. In the same way the fewer the controls needed the more effective they will be. The controls need to be meaningful, in terms of measuring significant issues or events, and relate to the key business objectives. As controls have such an impact, not only must controls be meaningful, they must be appropriate (that is, not open to interpretation with the potential for inappropriate or no action). Congruent controls are those that provide the right order of magnitude. To say “we have 21% of the market” sounds reassuringly precise but is usually so inaccurate as to be meaningless. Timely controls are necessary so that there is sufficient time to act before negative events turn into terminal events. Simple controls are needed so that they are readily understood. Otherwise they confuse, absorb too much time and most importantly do not permit control.

17.7.3 Regulatory and statutory requirements

Those companies listed on the exchange and required to abide by the Listing Rules and Handbook are required to notify the FSA of any operational risk that may have a significant regulatory impact. This requirement includes notification of a significant failure in its systems and controls, a significant operational loss or its intention to enter or significantly change a material outsourcing arrangement. Hence just having controls is not enough. It must be possible to discern when they are not being effective. Pre-agreed trigger points are required so that a notification is issued to the FSA when certain parameters are exceeded.

Businesses within regulated industries have to ensure that they comply with the restraints imposed. An example is the pharmaceutical industry, which is subject to a series of balances and checks. Prices charged and profits made by branded drug companies are modulated by the pharmaceutical price regulation scheme (PPRS). The PPRS has three objectives: to secure safe and effective medicines for the National Health Service at reasonable prices, to promote a strong and profitable pharmaceutical industry with sustained research and development capacity and to encourage the competitive and efficient development and supply of medicines. The pharmaceutical industry also has to cope with pressures from other sources. In 2005 the Office of Fair Trade announced a probe into pricing practices by drug companies, pressure was exerted by HM Treasury to reduce waste in public health spending and the National Institute for Clinical Excellence (a government advisory body on the efficacy and cost of medicines) began to flex its muscles.

17.7.4 Continuity

A business must make arrangements for the continuity of its operations in the event that a significant process or system becomes unavailable or destroyed. This risk relates to IT service outages and unreliability causing disruption to the business. Actively managing this attribute of risk requires capabilities in incident and problem management, IT service management, business continuity and disaster recovery. In many businesses temporary loss of primary computer systems can cause significant disruption of business processes, while permanent damage to critical servers and or software applications can suspend business operations for days. Business continuity is discussed further in Section 17.8.2.

17.7.5 Indicators of loss

The risk indicators are used to facilitate regular quantitative assessment and monitoring of risk exposures and mitigating responses. There is only any value in establishing indicators if data is collected and reviewed on a regular cycle and specific response plans are put in place to address the findings. During the first reviews it may be discovered that more information needs to be collected so that more meaningful responses can be implemented. Indicators are tailored to suit a business's specific services and operating context. Typical indicators are:

- Bank borrowing against credit limits
- Cost of raw materials
- Sales revenue
- Third-party defaults
- Shareholder complaints
- Lawsuits
- Business continuity events (see Section 17.8.2)
- Customer complaints
- Contracts secured and contracts lost

17.7.6 Transactions

Meeting commitments

A common process risk for any business relates to the processing of transactions. Transaction risk relates typically (but not exclusively) to the manufacturing sector. The risks to a business emanate predominantly from not honouring commitments to a customer in terms of time, quality and quantity. This includes the potential for errors in any stage of a business transaction including pricing, design, manufacture, sales, confirmation, documentation and fulfilment. At any stage of the transaction process, a company is faced with risks that can cause financial, reputation and/or customer loss. For instance a pricing error at the time of entering into contract can cause lower profitability or loss, whereas a fulfilment problem can result in a customer ceasing to do business with the firm.

Production processes

Another common process risk is product defects. Control charts have been used in manufacturing (Eppen 2001) to measure variability and the goal was to continue to reduce the variability in processes until zero defects became an obtainable goal. Japanese companies led the world in adopting and perfecting process improvement (risk reduction) and the quality of their products has been testament to their philosophy on variability management. Eppen describes total quality management (TQM) starting to make an important impact on manufacturing in the US in the second half of the 1970s. US electronics group Motorola made process improvement a central part of its corporate strategy. The Motorola approach became known as the six-sigma system and became the guideline for all Motorola processes, not just manufacturing. The basic idea was to improve processes so that the probability of a defect was effectively zero. The goal of a TQM company is to take the variability (risk) out of the entire process of producing a good or service.

Documentation risk

Documentation risk might be considered a subset of transaction risk, as it is one step in the overall process of a transaction. Decisions made as the result of information contained in documentation which is incomplete, incorrect, inconsistent, open to interpretation, time expired and so on may result in inappropriate or misguided business activity. It may lead to poor decisions regarding oil exploration, drug development or company acquisition. Contracts, a form of documentation (Lam 2003), are a significant source of documentation risk as evidenced by the volume of case law. Any company is likely to have a large number of contracts with third parties in existence at any one time. They are the potential source of dispute and disagreement, which may lead to legal action. Any dispute can deflect senior management away from their core duties and disputes that have to be resolved through the courts can consume a significant amount of management time.

Product variation risk

Variability risk is the risk experienced by manufacturers where a customer requires: (1) a specific feature of their product that when added distinguishes the product from otherwise identical products and (2) the modified product to be sent to a specific destination, when that product is typically distributed among several locations (Eppen 2001). The risk relates to a process burden and how successfully it is responded to. Eppen cites the sale of printers in Western Europe by electronics manufacturer Hewlett-Packard as an example of variable risk, as follows. In general a different power source and set of instructions are required for the printers for each country. In the original design, the power source was an integral part of the printer. Printers were assembled in Vancouver, Washington, packaged along with appropriate instruction documents and shipped to European warehouses. The process was redesigned based on the principle of delay. The printer itself now serves all countries. The power source is built into the power cord. Printers can be assembled in the US and shipped in bulk to warehouses in Europe. When an order arrives, the printer and its appropriate power cord and instructions are packaged and dispatched to the customer. This change substantially reduced the level of inventory needed to satisfy uncertain demand – Eppen explains this is very important for a product that measures obsolescence in months.

Goods in transit risk

Reddaway, from his experience as insurance manager within group risk at Glaxo Wellcome states a facet of operational risk management responsibility for large global organisations is goods-in-transit, which he describes being composed of three key areas: theft, accumulation risks and recoveries (Reddaway 2001). Global companies face the serious problem of hijacking and theft in such areas as Eastern Europe and Latin America. He sites accumulation risks arising when shipping goods and batches of goods or containers come together in one place, say while waiting for transportation, in a vessel, or at a customs warehouse. Reddaway also refers to the situation where international regulations can stipulate that compensation should be made according to the weight of the cargo rather than the real commercial value of the goods. The mitigation action is referred to as seeking immediate legal and technical advice to demonstrate negligence of the carrier and press for settlement based on actual commercial value as opposed to weight.

17.7.7 Computer/IT systems

IT systems include the computer systems and information technology infrastructure required for the automation of processes and systems, such as application software, operating system software, network infrastructure, and desktop and server hardware. There is a strong overlap between operational risk and technology risk. This section should be read in conjunction with Section 17.8.2 and Chapter 18, as the subjects overlap. As computer technology becomes increasingly necessary in more and more areas of business, operational risk events due to computer failures have become an increasing concern. Computer system risks include business alignment, network availability, data security, system capacity, unauthorised access/use and data recovery.

Business alignment

The board must be assured that its IT system reflects its business needs and that the organisation is exploiting the system to full advantage. Hence boards commonly have a series of questions for the IT department such as those included below. The risk for any business is that it has not invested wisely and its IT system is not adding to business performance and particularly competitive advantage. Quite distinct differences in strategy will be evident in businesses where IT is the business and where IT has a minor role. When IT is the business, such as for Yahoo and Google, or the key driver of operational effectiveness and service delivery, for example airlines, banks, insurance companies, hotels and increasingly estate agents, then every IT project is able to have a direct impact on the performance of the business and hence its worth in the market place. A good example of where IT is the business and its systems differentiate it in the market place is Dell Computers. Dell's capacity to deliver a customer-specified configuration PC in a short timeframe clearly sets it apart from its competitors in the same industry. That the IT is used to analyse price sensitivities to incremented system improvements and forewarn key suppliers of likely trends, show that Dell drives its business through IT.

- Does the IT system reflect the business strategy and hence the business plan?
- Does the pace of development of the company's technological infrastructure match the pace of development of its business?
- How much benefit is being received from its IT?
- Is there sufficient in-house support provided for the IT users?
- Are ongoing systems acquisition, development and maintenance appropriate to the current business requirements?
- Are the risks inherent in the existing system and any planned changes understood?
- Can planned changes be implemented predictably?

Network availability

The automation of processes and systems may reduce a business's susceptibility to people risks such as human error, but will increase a business's dependency on the reliability of its IT systems. If centralised systems go "down" then all hosted services go down, information processing ceases and all users are impacted. A temporary loss of a network can prevent access to files, the intranet, the world wide web, customer details, personal calendars, e-mail, personal contact details, transaction records and so on. In larger organisations where the IT system has evolved and grown over time across a number of sites and buildings, and there have been

changes in the IT staff, knowledge of the network is incomplete and mapping of IT services to infrastructure is not as good as it might be. When one server fails its root cause may not be immediately apparent. Network redundancy and resilience, that is alternative routes for traffic to follow, are the key design principles that are now adopted to reduce the risk of individual link outages.

Data integrity

Corrupted or degraded data is as valueless as data that is completely lost, when the extent of corruption or degradation is unknown. When discovered, corrupted information cannot be used until it has been checked, double-checked and confidence in its use has been restored. All the time and expense that is involved in correcting the wake left behind the use of invalid data, finding and identifying errors, rebuilding and then validating the data, could have been used profitably. However, there may always be that nagging doubt that the data is a risk to the business as corrupted elements remain undiscovered. The situation is obviously far worse when corrupted or degraded data is assumed to be reliable and is treated as a valuable asset. In the instance staff and customers rely on and make decisions on the data, the consequences could be very significant, particularly where personal safety is put at risk. Those intent on fraud may affect data integrity by changing prices, delivery instructions, status of the goods (new or damaged), or payment details. Degraded assets can destroy an organisation. If a bank's customer transaction records have been systematically distorted, it can destroy the bank. Unintentional corruption or loss typically arises from the following sources:

- A simple power failure at a critical moment can lead to information being lost (not saved) and the extent of the loss is not discernible or the software generates errors.
- Computer software errors such as bugs in the software allowing: data to be overwritten, data to be written to one file and not another, prices to be changed without records kept, deliveries to be authorised twice, calculations that generate incorrect values and so on. The list is enormous.
- A hardware malfunction or a telecommunication failure leading to information not be saved, or loss of receipt of information from external sources.
- User error through the disregard of software warning messages resulting in data corruption or loss.

Electronic data security

Security of electronically held data is a serious risk, which, as a result of the internet, now has a global perspective. As an example during January 2000⁹ a United Nations agency was forced to close down part of its website after it was hacked into by a cyber "vandal". A link on the site of the World Intellectual Property Organisation¹⁰ (WIPO), instead of showing a collection of laws for electronic access, displayed lyrics of a Bruce Springsteen song under the caption "Children of the Darkstar". The information held in electronic form within a business's information systems needs to be protected against unauthorised access, which may result in theft, corruption, corporate espionage and/or disclosure. The risk can originate from

⁹ BBC News report (2000) "Hacker Hits UN Website", Thursday, 20 January 2000, <http://news.bbc.co.uk>.

¹⁰ WIPO is an intergovernmental organisation and is one of 16 specialised agencies affiliated to the UN. It oversees the administration of various multilateral treaties regarding intellectual property such as trademarks and copyrights.

inappropriate access or use of technology from inside the business, but more commonly from outside it. While financial crime is nothing new, the ways in which financial crime is being committed are changing. Criminals are increasingly using information technology (IT) to commit crime, as it is quick with low risk but potentially high rewards. Hackers see the infection of systems with viruses or data corruption as a sport. Viruses or data corruption can prevent important information from being used by the business.

Of the responding firms to independent surveys conducted by the NHTCU and the DTI, 83% and 94% respectively reported that they had been the subject of system intrusions. These attacks were in the form of virus attacks, denial of service attacks (causing websites to crash), financial fraud and system penetration. Of particular concern is “phishing” which is aimed at identity theft. “Phishing” attacks are where criminals send hoax or spoof e-mails misrepresenting corporate identity to deceive individuals into disclosing their personal financial data such as account numbers and pass information. They create websites that mimic the brands of “high street” financial firms. Gartner Research reported in May 2004 that “phishing” attacks cost US banks and credit card companies US\$1.2 billion in 2003 Financial Services Authority 2004. A study reported in the Metro (15 April 2005) entitled “seven in ten banks at risk from cyber-crime” conducted by Information Risk Management of 18 online banking companies, showed that 72% were vulnerable to long-term hacking attacks.

Three recent highly publicised examples of system breach occurred during 2004 and 2005. The first relates a Californian man, Nicholas Lee Jacobsen, 21, who was arrested in October 2004 for hacking into T-Mobile’s network and taking names and social security numbers of 400 customers.¹¹ T-Mobile is a subsidiary company of Deutsche Telekom and has about 16.3 million subscribers in the US. It is thought his hacking campaign took place over at least seven months during which time he read e-mails and personal computer files, but failed to obtain customer credit card numbers, which were stored on a separate computer system. The arrest came a year after T-Mobile uncovered the unauthorised access. The US Secret Service had been investigating the case. It is interesting that the Associated Press agency reported that the hacker also read personal files on the Secret Service agent who was apparently investigating the case. A Los Angeles grand jury indicted Mr Jacobsen with intentionally accessing a computer system without authorisation and with the unauthorised impairment of a “protected” computer between March and October 2004.

The second publicised, but more serious incident, which occurred in 2004, relates to the arrest of 53 people by Federal police in Brazil for allegedly stealing \$30m (£16m) from Brazilians through internet fraud.¹² They said the arrests were made across four states in the north of Brazil. The group secured the money by sending e-mail attachments infected with a virus which was able to store details of people’s internet bank accounts, police said. Computer fraud experts at the time declared Brazil as the global capital of hacking and internet fraud. Cristiano Barbosa, who coordinated the operation which resulted in 53 arrests, told the *Jornal do Brasil* newspaper: “They diverted money from e-mail accounts across the country – mainly in the south or south-east where people use e-mail more frequently.” At a conference in the capital, Brasilia, in the previous September, Federal police said the country was home to eight out of 10 of the world’s hackers. The amount of money lost in internet financial fraud in Brazil outstripped that lost through bank robberies, the conference was told. And security experts from other countries said some 96 000 hacking attacks were launched from Brazil last year – six times more than any other country. The explosion in hacking was blamed, in part, on weak

¹¹ BBC News report (2005) “US Hacker Breaks into T-Mobile”, Thursday, 13 January 2005, <http://news.bbc.co.uk>.

¹² BBC News report (2004) “Brazil holds \$30m Fraud Hackers”, Thursday, 21 October 2004, <http://news.bbc.co.uk>.

legislation. Police have to prove fraud has taken place in order to prosecute, as hacking itself is not a crime in that country.

Lastly, on Thursday, 17 March 2005, the police in London announced they had foiled one of the biggest attempted bank thefts in Britain.¹³ It would appear the plan had been to steal £220m (\$423m) from the London offices of the Japanese bank Sumitomo Mitsui. Computer experts are believed to have tried to transfer the money electronically after hacking into the bank's systems. Yeron Bolondi, 32, was seized in Israel, after the UK National Hi-Tech Crime Unit uncovered an attempt to transfer £13.9m into an account there. Unit members worked closely with Israeli police. The investigation was started last October after it was discovered that computer hackers had gained access to Sumitomo Mitsui bank's computer system in London. They managed to infiltrate the system with keylogging software that would have enabled them to track every button pressed on computer keyboards. From that they could have learned account numbers, passwords and other sensitive information. Bolondi was initially charged with money laundering and deception, but police said their investigation was continuing. They issued a warning to banks and businesses to watch out for cyber criminals. The National Hi-Tech Crime Unit was launched in April 2001 with responsibility for tracking down the growing range of criminals who operate in cyberspace. Takashi Morita, head of communications at Sumitomo Mitsui in Tokyo, said the company had not suffered any financial loss as a consequence of the robbery attempt.

In 2004 the SANS¹⁴ Institute (a non-profit group which trains and certifies computer security professionals) published a list of hackers' favourite top 20 security breaches to help organisations find out if they were closing the most commonly exploited vulnerabilities.¹⁵ With more than 2500 software vulnerabilities found every year, the list was published to assist organisations in prioritising their risk response actions. The list includes loopholes found in both Windows and Unix/Linux software.

Top 10 Windows

1. Web servers and services
2. Workstation service
3. Windows remote access services
4. Microsoft SQL server
5. Windows authentication
6. Web browsers
7. File-sharing applications
8. LSAS
9. E-mail programs
10. Instant messaging

Top 10 Unix/Linux

1. Bind domain name system
2. Web server
3. Authentication
4. Version control systems
5. Mail transport services
6. Simple Network Management Protocol (SNMP)
7. Open secure sockets layer (SSL)
8. Misconfiguration of enterprise services
9. Databases
10. Kernel

The report which accompanies the Top 20 fleshes out individual vulnerabilities and what organisations can do to close these holes. Almost 60% of the loopholes listed in the 2004 report

¹³ BBC News report (2005) "UK Police Foil Massive Bank Theft", Thursday, 17 March 2005, <http://news.bbc.co.uk>.

¹⁴ SANS claims to be the most trusted and the largest source for information security training and certification in the world. It develops and maintains the largest collection of research documents about various aspects of information security, and it operates the internet's early warning system – Internet Storm Centre. The SANS (SysAdmin, Audit, Network, Security) Institute was established in 1989 as a cooperative research and education organisation. The SANS Institute is located at 8120 Woodmont Avenue, Suite 205, Bethesda, Maryland 20814 (www.sans.org).

¹⁵ BBC News report (2004) "Top 20 Computer Threats Unveiled", Saturday, 9 October 2004, <http://news.bbc.co.uk>.

were in the 2003 Top 20 list. The institute advises this was because only half of all organisations patched their systems and had not yet reached the point of fixing their vulnerabilities automatically.

System capacity

Basically system capacity relates to the amount of memory on a server which impacts all businesses. However, with the growth of the internet and e-commerce system capacity can relate to the number that can access a system at any one time. There have been instances when airlines have made special offers and potential customers have been unable to access the airlines' websites due to demand.

Data recovery/loss

Back-ups have been used since the earliest beginnings of IT, when the inherent unreliability of the hardware necessitated rigorous copying of data, and the frequent use of the back-up of data. Now that reliability is dramatically improved, businesses are less likely to use data restoration facilities, explaining the common reality that restoration and recovery is not completely effective.

17.7.8 Knowledge management

Information is increasingly forming the lifeblood of any organisation. A company's knowledge or intellectual property is usually the basis of the company's current success. The security of that information is key to competitive advantage. Hence a key component of knowledge management is keeping commercially sensitive information, which would be useful to competitors, secure. How successful a company is in this task depends on a company's information culture. This can be defined as the values, attitudes and behaviour that influence the way employees collect, organise, save, discuss, process, communicate and use the information.

Intellectual property

National and cultural standards regarding intellectual property differ significantly around the world. The rules for intellectual property protection between different countries are neither uniform nor equally enforced. The tracking of online dissemination and use of intellectual property, as well as the capability to collect payment, is not well developed in interactive networks. This is especially true of the internet, which on inception was never intended to be used for commercial purposes. Companies can also be exposed and vulnerable when working in collaboration with companies on large projects, when under normal circumstances these companies would be competitors. The intellectual property protection issues arising out of collaboration are discussed in the *Financial Times* article in Box 17.5.

17.7.9 Project management

Organising any activity, which has predetermined constraints, requires the discipline of project management. However, how best to organise the efforts of individuals to achieve a desired outcome has been one of the world's most important, difficult and repeatedly controversial

Box 17.5 Intellectual property

Companies are struggling to protect their intellectual property when they embark on collaborative development projects and could risk serious financial consequences as a result, according to a government-funded study being launched today. Part of the problem lies with senior management, which has been slow to draw up comprehensive IP policies, and ensure that these are understood by the likes of information technology managers and engineers, as well as in house lawyers and patent attorneys, it says. "Any corporate IP policy needs to sit at the interface of IT strategy, commercial and contractual policies and engineering and design practices", says the study. But, it continues: "those involved in corporate strategy mainly concern themselves with managing tangible and financial assets, and IP management seems to be treated as a specialist task that does not readily find its way into the boardroom". The report points out that the risk of IP losses can be exacerbated by the growing use of electronic data networks, which are often a feature of collaborative projects, although it notes that technology can be employed positively to track the use of IP assets. It cites, for example, research conducted by the UK National High Tech Crime Unit last year. This found that 12 per cent of businesses had experienced instances of data theft through the internet, causing losses of about £7 billion. "Anecdotes abound of engineers that are only too happy to share proprietary and commercially sensitive technical details with peers in other companies. Although some of these anecdotes involve instances in which such exchanges were not facilitated by electronic networks, concerns remain about what would happen when the digital systems for collaboration are in place that could allow a loquacious engineer to send reams of technical information across to project partners with the click of a button." The report stems from research by academics at the University of Sussex for the UK Economic and Social Research Council and the Ministry of Defence, and will be launched at a conference of government procurement officials, lawyers and executives at the Institute of Advanced Legal Studies later today. According to Dr Puay Tang, one of the authors, the research was based on more than 60 interviews with people involved in collaborative development. The initial focus was on defence companies and subcontractors, but Dr Tang claims that the conclusions are broader. "The lessons are generic. Our results are pretty transferable," she said yesterday. The report suggests that clear and specific contractual conditions can help in IP management.

Source: Tait (2005).

problems. Organising relieve for tsunami, hurricane and earthquake victims in 2005, for instance, is evidence of the difficulties of project management. Project management is about planning, controlling and coordinating a project from inception to completion on behalf of a sponsor (or sponsors), where the sponsor(s) may be within or outside of the business. It is concerned with the identification of the sponsor's objectives in terms of function, time, cost and quality. It involves the integration, control and monitoring of the contributions to the project to achieve these desired outcomes. A fundamental aspect of project management is people management – working through others and relying on their timely collaboration to achieve the project objectives. Each project will have its own unique risk profile and will require the discipline of risk management to provide greater certainty of achieving its objectives. Large projects, when they fail or do not achieve their objectives, may have a debilitating effect on a

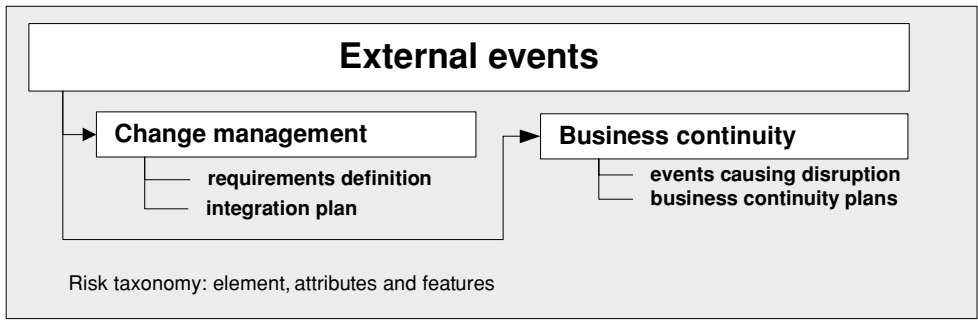


Figure 17.6 Taxonomy of external events risk

business or may in extreme cases bring about their downfall. Railtrack plc in the UK and Boeing in the US for instance have both experienced serious project problems that have shaken them to the core. Railtrack was placed into administration in large part due to the lack of performance of the West Coast Main Line project.

17.8 EXTERNAL EVENTS

External events (See Figure 17.6) are events that occur outside of the business, which may require a response in the form change management (such as organisational change) or the instigation of contingency events to cope with, say, a natural disaster.

17.8.1 Change management

The introduction of change needs to be handled with care to avoid a series of common risks. Where radical IT change is planned it is often prudent to consider the implementation of a small pilot study initially to understand the implications of the change and how they may be best addressed. Time must be taken to define as precisely as possible the requirements of the new solution. If cross-company deployment of new IT facilities is planned, then it is important that no one user or interest group steers the specification to solely suit their own needs, but a solution is defined that will meet the needs of the whole enterprise. As a solution appears as if it will become accepted and integrated into the IT system, its design must make for a long-lasting and durable solution that can be cost effectively maintained, enhanced and upgraded. A significant change management project usually warrants an integration plan to raise awareness of the change in advance of the deployment of the solution and to ease its introduction with the aid of familiarisation and training sessions appropriate to each of the disparate user groups. Deployment of the change into the business environment should follow established channels. Existing user champions, system experts and user group members would be the natural and logical choice for educating the users of the new system to support the integration and use of the system at the earliest opportunity.

17.8.2 Business continuity

Business continuity management is a holistic management process that identifies potential impacts that threaten an organisation and provides a framework for building resilience and

Box 17.6 Corporate security

Firms afraid of attacks from animal rights activists, computer hackers or terrorists, have spent £1m on extra security this year, says a new survey. November 2004 The Confederation of British Industry (CBI) survey of 100 top companies suggested most had shaken up their security arrangements¹⁶ Also two thirds had employed a chief security officer. The CBI says the government could boost confidence by being more open about its contingency plans. The organisation said businesses were spending significantly more on security than five years earlier and some of the newly appointed security chiefs even had places on firms' board of directors. Despite the extra security measures, 60% of those questioned in the Mori telephone poll said they were concerned about their firm's level of preparedness for an attack. CBI director general Digby Jones said: "Business Britain understands the meaning of risk and is working hard to calibrate the additional risks posed by security. But the risk assessment process in a business would be much improved if there was greater transparency from government and other key agencies. Business needs to have more confidence that it is getting its contingency planning right." Mr Jones also complained policing to deal with some threats, including those posed by animal rights activists, had been inadequate. "In a democratic society, companies and everyone that works for them must be protected from those who seek to prevent lawful business activity," he said. The problem of business security is on the agenda in the opening session of the CBI national conference in Birmingham on Monday. Dame Pauline Neville Jones, chairman of security technology specialists QinetiQ, said companies looked to the Home Office, police and private specialists for security advice. She suggested a coalition of agencies was needed to provide commonsense guidelines on the best measures. "It is not surprising that six in ten companies have residual concerns about their preparedness," said Dame Pauline. "In the absence of relevant guidelines and measures, they cannot be sure that their resources and budgets are being used to greatest effect."

the capability for an effective response, which safeguards the interests of its key stakeholders, reputation, brand and value creating activities (Business Continuity Institute 2002).

Events causing disruption

There are a number of issues that can disrupt businesses, or in severe circumstances put them out of business. The issues of attacks by animal rights activists, computer hackers and terrorists is addressed by a BBC report included in Box 17.6.

However, a more comprehensive assessment of the issues that can derail a business were captured in a survey led by the Chartered Management Institute (CMI). In January 2004, the CMI, supported by COLT Telecom Group plc, Nortel Networks and the Business Continuity Institute, undertook a survey of managers to understand the main events, which disrupted their organisation in the last year. The results obtained were derived from postal questionnaires sent to individual CMI members. A total of 461 responses was obtained. The results are illustrated

¹⁶ BBC news report (2004) "£1m Spent on Firms' New Security", Sunday, 7 November 2004, <http://news.bbc.co.uk>.

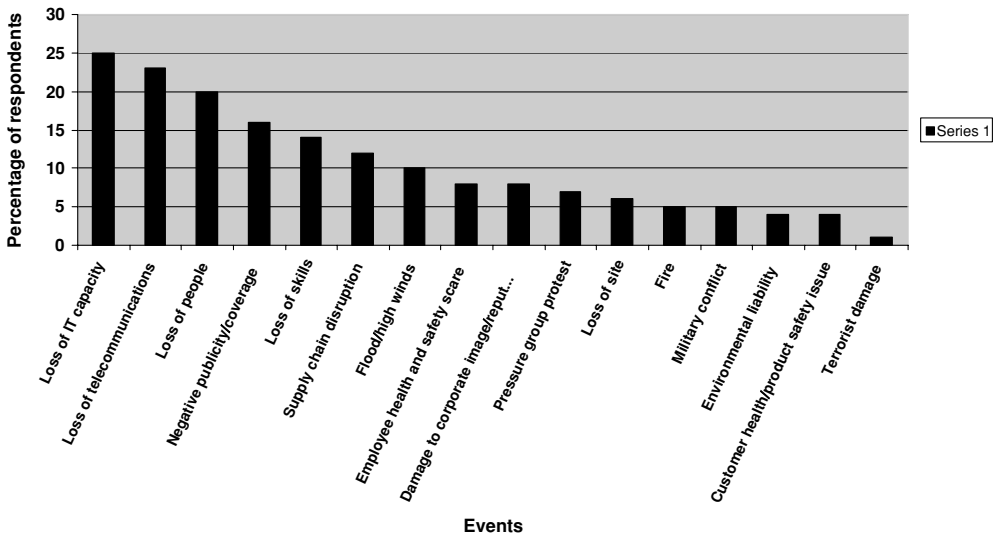


Figure 17.7 Events causing disruption to organisations in 2004

in Figure 17.7. Twenty-five percent of respondents suffered a loss of IT capacity, whereas 1% of respondents suffered terrorist damage.

Business continuity plans

The survey also uncovered that 53% of organisations had no business continuity plan. It was found that the production of business continuity plans was more prevalent in companies with an annual turnover of £11 million. The survey concludes that:

Businesses that require an uninterruptible power supply, particularly those protecting sensitive data on computer systems, require a back-up UPS battery supply designed to cut-in, during a mains black out. These systems must be capable of supplying large amounts of power with a high degree of reliability. They are commonly composed of lead acid batteries as they have a low self-discharge rate, which reduces the cost of recharging.

17.9 OUTSOURCING

Businesses frequently decide to outsource aspects of their operations to independent third parties for reasons including cost, efficiency and/or risk transfer. Outsourcing provides the opportunity to bring significant benefits to a business; however, it may alter the risk *profile* of a business from a number of aspects. The boundaries of outsourcing risk need to be clearly understood, due to the relationship with business continuity, information security, regulatory risk and so on. Included below is a non-exhaustive list of potential risks:

- The business (in a regulated industry) does not notify the regulator of the intention to outsource a significant element of operations.
- Failure on the part of the third party to adhere to contractual arrangements as a result of significant changes to their people, processes and systems.
- Reduced control over the people, processes and systems deployed by the third party.

- Business (working in a regulated industry) does not require the third party to whom it has entered into a contract with, to pre-agree any changes in the service provision, which would contravene its operating agreement.
- Third-party competency, financial standing or expertise not adequately assessed prior to contract.
- Third-party performance not monitored on a regular basis during the life of the contract.
- Business does not agree rights of termination of the contract (with the third-party supplier) in the event the supplier becomes insolvent or goes into liquidation or receivership.
- The business does not prepare a business continuity plan for the instance where the supplier significantly underperforms or goes into liquidation.
- Third party's business continuity plan is not reviewed by the business prior to contract.
- The third party is not required to either agree in advance outsourcing of services to a sub-contractor or notify the business when outsourcing has been undertaken.
- Information security breach arising from outsourcing used administration computer functionality.

17.10 MEASUREMENT

A key aspect of operational risk management is control. However, to be able to prioritise management action and focus on those issues likely to have the greatest detrimental effect on the operation of the business, it is necessary to measure their likely impact. To accomplish this measurement it is necessary to have both historical data and high-powered analytical tools. As identified by the FSA, many organisations are unable to measure a number of operational risks quantitatively yet, due to the absence of these facilities (Financial Services Authority 2002). Measurement is important as it enables businesses to set aside monies to cope with possible adverse events and to know the extent of insurance required, if the decision is taken to transfer the risk of potential losses. Transfer is always at a cost and it is never absolute.

17.11 MITIGATION

The success of mitigation will depend on a number of things. It will depend for instance on: the degree to which risk management is embedded in the business and championed from the top; the robustness of the risk identification process; the willingness and the desire of senior management to distil from the assessment process the priority issues and take the time to prepare specific tailored risk response actions; the experience of senior management of the risk exposure issues being addressed and the comprehensiveness of the approach. The quality of the response actions themselves will depend on the amount of time taken to research the problem and examine alternative responses. A fall in sales may be from, say, a number of interrelated issues.

17.12 SUMMARY

This chapter examined the operational risk elements described as strategy, people, processes and systems, external events and outsourcing. From the introduction it can be seen that there is a growing interest in this area of enterprise risk management due to its ability to address everyday management issues which if not properly controlled will at least be debilitating and at worst affect survival. Operational risk does not only affect systems and processes but also

emanates from what might be described as first principles, that is the setting of the strategy, the development of the business plan and the allocation of resources to that plan. While frequently given scant attention, businesses operate through their personnel. Businesses must establish a series of systems and controls to manage people risk from the perspective of the behaviour of the business to its people and the behaviour of its people within the business. Every step in the recruitment, induction and ongoing management of staff impacts a business's operational risk exposure. Processes and systems are a significant area of operational risk spanning such subjects as business continuity, transaction risk, IT and information security. Operational risk impacts businesses from within and from outside. External events such as flooding, power failure and terrorist damage can all derail a business. And last but not least, outsourcing, while frequently a CEO favourite for cutting costs, can bring a business to its knees as fast as any other serious operational risk event. The dependence on others for critical suppliers or operational activities will always be a major source of risk.

17.13 REFERENCES

- Branson, R. (2002) *Losing My Virginity, The Autobiography*, updated edition 2002, printed 2005, Virgin Books Limited, p. 257.
- Basil Committee on Banking Supervision (2004) *International Convergence of Capital Measurement and Capital Standards, a Revised Framework*, Bank for International Settlements, Switzerland (Basel 2).
- The Business Continuity Institute (2002) *Business Continuity Management: Good Practice Guidelines*, Version BCI DJS 1.0, 01/11/02, Editor Smith, Dr D.J., website: www.thebci.org.
- Carey, A. and Turnbull, N. (2001) "The Boardroom Imperative on Internal Control", in *Mastering Risk Volume 1: Concepts*, editor James Pickford, Pearson Education Ltd, UK.
- Chapman, R.J. (2002) *Retaining Design Team Members, a Risk Management Approach*, RIBA Enterprises, UK.
- Maxant, R. (2004) *Global Risk Management Study* (fourth biannual global risk management survey of financial institutions), Deloitte & Touche LLP.
- Drucker, P.F. (1983) *Management*, Pan Books Ltd, London, 7th printing. First published 1977 by Harper's College Press, New York.
- Drucker, P.F. (1992) "The New Society of Organisations", *Harvard Business Review*, September–October, 100.
- Eppen, G.D. (2001) "Chating a Course Through the Perils of Production", in *Mastering Risk Volume 1: Concepts*, executive editor James Pickford, Pearson Education Ltd, UK.
- Financial Services Authority (2001) *Consultation Paper 97a, Annex C: Draft Rules and Guidance*, The Financial Services Authority, Canary Wharf, London, June.
- Financial Services Authority (2002) *Consultation Paper (CP) 142, Operational Risk Systems and Controls*, The Financial Services Authority, Canary Wharf, London.
- Financial Services Authority (2004) *Countering Financial Crime in Information Security*, The Financial Services Authority, Canary Wharf, London.
- Financial Services Authority (2005) *Operational Risk Management Practices, Feedback from a Thematic Review*, The Financial Services Authority, Canary Wharf, London, February.
- Higgs, D. (2003) *Review of the Role and Effectiveness of Non-executive Directors*, printed in the UK by The Stationery Office, Item 11.2, p. 47.
- IM (1999) *People Management*, Hodder and Stoughton Educational, London, England, for the Institute of Management (IM).
- Lam, J. (2003) *Enterprise Risk Management, from Incentives to Controls*, John Wiley & Sons Inc., New Jersey.
- M.o.R (2002) Office of Government Commerce, *Management of Risk: Guidance for Practitioners*, printed in the UK by The Stationery Office.
- Osman, C. (2003) Part 8.2, "Employment Practices", in *Managing Business Risk, a Practical Guide to Protecting your Business*", consultant editor Adam Jolly, printed by Kogan Page Limited.

- Ostergen, K. (1989) “*Man as a Critical Resource – A Study of Patterns in Keypersons Behaviour*”, Department of Business Administration, Umea Universitet, Sweden.
- Peccia, T. (2001) “Designing an Operational Risk Framework from a Bottom-up Perspective”, in *Mastering Risk Volume 2: Applications*, editor Carol Alexander, Pearson Education Ltd, UK.
- Pinnington, A. and Edwards, T. (2000) *Introduction to Human Resource Management*, Oxford University Press, Oxford, UK.
- Reddaway, R. (2001) “The Devil in the Details: Attaining Coverage for the Global Corporation”, in *Mastering Risk Volume 1: Concepts*, editor James Pickford, Pearson Education Ltd, UK.
- Schmitt, B. (2001) “Branding Puts a High Value on Reputation Management”, in *Mastering Risk Volume 1: Concepts*, editor James Pickford, Pearson Education Ltd, UK.
- Sherman, A., Bohlander, G. and Snell, S. (1998), *Managing Human Resources*, eleventh edition, South Western College Publishing, Cincinnati, Ohio, p. 93.
- Tait, N. (2005) “Business Warned to Protect Creative Jobs” *Financial Times*, Friday, 4 March 2005.
- Tyson, S. and York, A. (1996) *Human Resource Management*, Butterworth-Heineman, Oxford, England, third edition, reprinted 1997.
- Wyche, C. (1990) “British Airways Flies the Marketing Flag”, *Personnel Management*, October, 125–127.

The ubiquitous technologies of today are information, communication and controls. These technologies can raise productivity, lower costs and drive growth. Internet technology has become critical to companies such as airlines, banks, insurers and hotels. While previously IT was used to remove administrative and bureaucratic burdens, so that staff could spend more time doing their “proper jobs”, it is now an enabler of the business plan and growth targets. In today’s highly competitive business environment, the effective use of technology has the ability to transform enterprises and contribute to enhanced and sustainable stakeholder value. This improvement in value is commonly being driven by technology investment, optimisation of resources and diligent maintenance, to preserve reliability. However, rapid technology changes and the convergence of technologies (such as computer and telecommunications) are constantly redefining “industrial boundaries” so that “old” industrial sectors become barely recognisable. Even Microsoft feels the pressure from time to time, illustrated by Bill Gates’ statement “in three years every product we make will be obsolete. The only question is whether we’ll make them obsolete or somebody else will” (Gates 1999).

So changes in technology are both an opportunity and a threat in terms of market share and market development. In addition the introduction of technology within a business can also open the door to a series of debilitating risks, which may seriously erode profitability and competitive advantage, or at worst lead to business failure. Hence CEO and board-level direction and oversight are essential. This requires technology governance structures with the right level of executive involvement and commitment, clarity about the business’s risk appetite and clearly defined levels of responsibility for risk management including, as a minimum, identification, measurement, management and monitoring. Technology is an all-embracing term. While there are numerous technologies, the common technologies considered to be important to business and considered here are information, communications and control. This chapter seeks to provide a definition of technology risk management, and examine the primary technology types of interest to businesses, sources of risk and possible responses. The structure of the chapter is illustrated in Figure 18.1.

18.1 DEFINITION OF TECHNOLOGY RISK

Before being able to define technology risk, it is important to understand what we mean by technology in a business context. The economists’ perspective of technology is that it is a component of capital goods (one of the factors of production) used by businesses to produce commodities consumed by society. Technology then is a subset of production, the process that transforms inputs into a set of outputs. Traditionally this means turning raw materials and component parts into finished goods. Examples of this transformation process that we are all familiar with from television advertising are car assembly plants, and television and computer production lines. While technology is important to the process of production, its application is broader. The *Oxford Everyday Dictionary* definition is as follows: “technology is the scientific

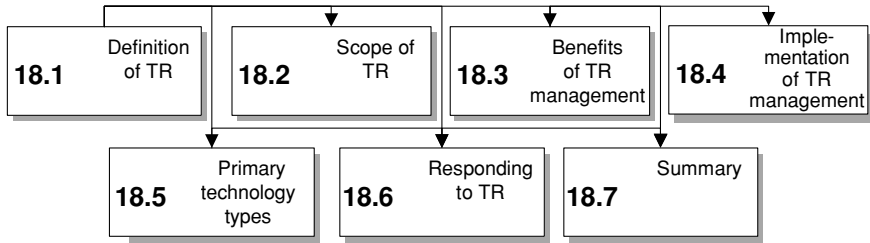


Figure 18.1 Structure of Chapter 18

study of mechanical arts and applied sciences”. Mechanical arts and the sciences are continually applied to product design. Hence the commodities produced by the manufacturing process exhibit incremental advances in technology and their functionality, quality and reliability influence market creation, market share and market growth. In addition, now that we are part of the Information Age, technology is not just about manufacturing and product design, it is about the integration of mechanical processes and information, such as the use of software to drive mechanised air cargo warehousing at British Airways, optimise production in steel plants at the Anglo-Dutch steelmaker Corus and produce aircraft components at Boeing. In addition it is about “digital nervous systems”, a term coined by Bill Gates to describe a well-integrated flow of information to the right parts of the organisation at the right time (Gates 1999). Hence technology risk may be defined as events that would lead to insufficient, inappropriate or mismanagement of investment in technology, in terms of manufacturing processes, product design and/or information management. Mismanagement would include poor business continuity planning, security or protection of intellectual property. The most significant effect of this risk would be erosion of market share.

18.2 SCOPE OF TECHNOLOGY RISK

A sample of the sources of risk that are considered to be embraced within the term “technology risk” are recorded below. The potential list is considerable. Any examination of the sources of risk needs to be tailored to the specific activities of a business.

- Lack of investment in technology and the resultant erosion of ability to compete.
- Inadequate technology governance and in particular IT governance.
- Inadequate management of outsourcing.
- Lack of alignment of IT to the business objectives.
- Inadequate protection against viruses, hacking and loss of confidentiality of information.
- Inadequate flexibility of production to be able to economically produce small production runs.

18.3 BENEFITS OF TECHNOLOGY RISK MANAGEMENT

Technology risk management affords a business benefits as it:

- Improves the quality of information for decision making. Business leaders who succeed will take advantage of a new way of doing business based on the increasing velocity of information and building advanced processes and products faster than the competition.

- Sets out the risks to investment in technology and promotes a proactive approach to managing technology projects.
- Maps the threats to existing business practices from emerging business-to-customer relationships. Gates claims “Today US businesses are ahead of businesses in other countries in the adoption of digital technologies. The many reasons include an openness to risk taking, individual empowerment and labour mobility” (Gates 1999).
- Draws attention to exposure to the loss of market share arising from a competitor’s improvement in product design.
- Forces a continuous review of developments in technology within manufacturing processes (technology advances can improve productivity).
- Provides insights into the disbenefits of not aligning technology to strategy and business operations. To get the full benefit of technology, business leaders will streamline and modernise their process and their organisation. The goal is to make business reflex nearly instantaneous and to make strategic thought an ongoing, iterative process – not something done every 12 to 18 months, separate from the daily flow of the business (Gates 1999).

18.4 IMPLEMENTATION OF TECHNOLOGY RISK MANAGEMENT

The development of a sound system of technology risk management will depend on attention being paid to a number of issues, including but limited to those listed below. A key aspect of technology risk management is not being outwitted by the competition and as a minimum keeping apace with their developments. The ideal goal being to set the pace.

- Managing investment in technology to secure the business objectives and optimise investment benefits.
- Ensuring the right information reaches the right people at the right time through a combination of management information systems, intranets and e-mail.
- Understanding the risks of outsourcing and to manage them.
- Monitoring competitors to avoid being “outmanoeuvred” by the introduction of new technologies that shift industrial boundaries.
- Embracing new developments in e-commerce.
- Implementing information security.

18.5 PRIMARY TECHNOLOGY TYPES

18.5.1 Information technology

Information technology is the collection, storage, processing and communication of information by electronic means. Examples of information technology “tools” include:

- Software applications include spreadsheets, databases, word processing, graphics packages, drawing packages, desktop publishing, presentation packages and expert systems. Spreadsheets save considerable time, make repeated calculations simple, aid accuracy, allow managers to set up mathematical models, investigate the effects of different strategies such as asking “what-if?” questions and provide many tools for analysis. For example, they provide graph and chart facilities together with compound interest, depreciation, optimisation and goal seek functions. Databases are a set of files organised to provide easy access to their

content. Expert systems cover a particular area of expertise and draw conclusions from computer stored knowledge obtained from specialists with domain knowledge. Their purpose is to capture the expertise of key people and making their knowledge available to users of the programme.

- Management information systems (MIS) are systems designed by organisations to collect and report information on projects and programmes which allow managers to plan, monitor and evaluate their performance.
- Intranets are computer networks based on the same technical standards as the internet but designed for use with a single organisation. Intranets are cheaper and simpler to install than proprietary networks, and companies are increasingly using them to circulate internal information such as phone directories, job openings together with training, marketing and publicity material.
- Telematics is the term given to the technology that enables remote access to vehicle data over a wireless network.
- Information assets, increasingly the lifeblood of any business, covers subjects like customer contacts, manufacturing process innovation, product design and IT development.

Software applications

This risk type deals with failures in IT applications. Applications are typically proprietary off-the-shelf software packages, customised proprietary software, bespoke software commissioned from a vendor or software developed in-house. Certain applications, such as those which are “job specific” and used for accounting, marketing, project management and human resources will be the domain of the departments of the same name whereas there will be other packages such as word processing and spreadsheets which will be used right across the business. The impact of any one application failing to perform as expected can range from a minor irritation to a major downtime during which employees are idle or they are unable to tackle priority tasks. The degree of impact will also be dependent on whether the application is department specific or is used company-wide and whether the application is “loaded” on a server or whether its is “loaded” on individual PCs. Customised bespoke software developed in-house can be the most problematical. For example, applications that are not easily maintained and changed over time (to reflect changing needs) may form a constraint to introducing further change. Applications that are poorly documented or not well structured may be difficult to fault-rectify with confidence. In addition significant defects can be introduced unwittingly by software developers when only minor changes are made, as they were not the original authors and do not appreciate the structure of the application. These types of risk require software engineering capabilities particularly for maintenance, enhancement, integration, testing and release management and subsequent change management, system administration, monitoring and problem management.

Management information systems

Management information systems for projects include scope definition, work breakdown structures, organisational breakdown structures, programming, budgeting, change control, value management, earned value analysis, risk management and contingency planning. The risk associated with these systems relates to the lack of implementation or their poor execution in terms of the accuracy of the data they contain, the completeness, currency (whether they are

kept up to date), revision control or lack of the creation of a baseline from which to measure progress.

Intranets

Intranets are touching everyone's lives from the US Marine Corps (who have adopted a situation awareness application) to physicians in southern Virginia and North Carolina (who can access patients' records remotely over the web) to school children in Reading (England) who can access the school intranet remotely. Intranets can offer considerable time-savings to a business if they contain information which is readily accessible by a significant percentage of the employee population. The downside risk is that should an intranet be unavailable for any length of time, that same employee group would be unable to perform some or many of their routine tasks.

Telematics

The word telematics can be used to describe any integrated communication and computer system, but it is now used almost exclusively within the context of vehicles. Telematics adapts ICT technologies to create vehicle management systems, thereby helping to resolve many logistical problems. Telematics provider Thales Telematics combines the technologies of precise positioning, using the satellite global positioning system (GPS), and data and voice communication using the GSM and GPRS digital mobile network. Thales consider the benefits of telematics includes auto geofencing which immobilises unattended vehicles, proof-of-delivery, preventing disputes over arrival/departure times of delivered goods and exact positioning enabling quick localisation in case of vehicle breakdown. In America the most popular telematics system is General Motors "OnStar", which provides features such as stolen vehicle tracking, remote diagnostics, and remote door unlocking made possible through an integration of an in-car computer, global positioning system (GPS), and mobile phone.

Telematics is used for monitoring, safety and convenience. A telematics system can notify an operator when the "check engine" light goes on or when an airbag deploys. When a safety measure is detected in the car, an operator calls the car to make sure the passengers are not in difficulty – and if they are, the operator sends helps. Global positioning systems tell the operator where to send the police and ambulance services. Telematics is considered to have considerable market potential and hence rather than posing a risk, is a business opportunity area. Similarly a Department of Transport (DoT) initiative to place chips on car number plates to monitor vehicle movements is considered to be another business opportunity. A government trial of the devices is planned for late 2005. Special cameras and hand-held readers will be able to identify 200 vehicles per second in all weathers. The DoT have advised that the chips are to record car thefts to reduce car crime. Over 500 000 vehicles are stolen every year (Higginson 2005).

Information assets

Information is the energy of enterprises generating new products and services and enabling new ways of working. Money, men, machines and materials (the four Ms) were the business resources of the past. Today we have a fifth resource – information. As described by Earl (1997), businesses have to be able to manage information as an asset, both as a lever for

business development and as a process for managing organisations. Examples of information assets can be found in the airline and retail industries. Competition in commercial airlines is substantially based on commanding electronic channels of distribution by way of reservation systems and on aggressive sales and yield management by analysis of customer databases. Within the retail sector loyalty cards (offered by organisations such as Tesco and Boots) not only provide frequent and volume purchasing discounts to customers but also capture individual customer behaviour allowing offerings to be customised and the development of newly targeted services. Businesses are building an information driven market place through the amalgamation of media, computing and telecommunications. Earl describes the latest visible sign of this convergence as the creation of the “infotainment” sector. New sectors are emerging and conventional sector boundaries are being eroded. All of these businesses are seen as information businesses.

In the information age business strategy cannot be formulated as a whole without considering information as an asset. Signs of this approach Earl describes as being “exemplified by the current wave of mergers and acquisitions around ownership of both information content and information distribution” hence “information intensive businesses have to consider threats such as entrants from other sectors – insurers offering banking, retailers offering insurance, software companies offering money transmission and so on – and intermediaries being taken out by direct electronic traders”. It is no longer the case that information strategies support business strategy, they are interwoven. IT strategy and business strategy are one. It is now seen that a business strategy is not complete if the information resource is ignored. Information and IT can create or destroy business.

If information is a fundamental component of business strategy then its protection is key. This type of risk relates specifically to damage, loss or exploitation of information assets held within IT systems. For many businesses, this risk commences with not recognising the information assets actually held. The risk of information asset risk can vary significantly. For example, customer information such as credit card details may be copied and used for fraudulent purposes or the “theft” published which is damaging to the reputation of the business. Similarly, information may be obtained by a competitor, removing competitor advantage. Core business processes reliant on critical information may be severely degraded such as an account enquiry function containing out of date or inaccurate information thereby becoming ineffective.

18.5.2 Communications technology

- Conference calls enable several people to hold a single telephone conversation.
- With the use of the internet, websites can be used to advertise the firm and offer the facility to buy direct over the net; e-commerce is the fastest growing business sector.
- Broadband¹ provides a more efficient quicker data communication channel. It enables workers to work from home as efficiently as in the office, cutting down on the firm’s costs.

¹ The main difference between broadband and traditional telephone communications is that broadband is based on digital technology, and the telephone is based on analogue technology. While analogue technology is fine for voice communications it has limitations when it comes to transmitting data. Digital technology is much more precise and accurate, and enables both higher speeds and greater reliability. While current standard telephone dial-up connections called “narrowband” systems can typically carry information at a rate of 56 Kbps (kilobits per second), broadband is around 10 times faster with download speeds of typically 512 KBps (kilobytes per second). Broadband providers are also able to offer transmission speeds of 1 mbps (megabytes per second), 2 mbps and more. This means that, in general, webpages load almost instantly. It also makes sending and receiving large e-mails far quicker, making it viable to transfer vast amounts of data in the form of attached files. For businesses, installing broadband offers much more than increasing the speed at which you can view websites. The nature of how information is sent over broadband networks means that you no longer have to go through the lengthy dial-up process to establish a connection each time you want to go online – it is “always on”. “Always-on”

- Video conferencing in which people can “meet” without leaving their offices. This cuts down on time and on travel costs.
- E-mail allows instant communication and the use of attachments enables the exchange of text, drawings, spreadsheets and diagrams in a format that is readily usable by the recipient.
- Network systems in which computers are linked to one another over a network; this may be used for sharing software or files.

Broadband

The term “broadband” is used to describe any high-speed connection to the internet. However, there are in fact several different types of broadband connection available in the UK through different ISPs (internet service providers). These include satellite, cable, wireless and ADSL. Satellite access is available anywhere in the UK so for some businesses in remote areas it will be the only option. It is, however, expensive to install and planning permission may be required for the dish. Cable requires a special cable connection to be installed into business premises. There are few wireless service providers in the UK and a receiver on the outside of the premises is required to send the signals through to connection points inside. These in turn send the data through to your computer(s). ADSL² (Asymmetric Digital Subscriber Line) is a technology that allows normal telephone lines to carry more data. ADSL is one variation of the DSL (Digital Subscriber Line) broadband technology, designed to bring large amounts of information through ordinary telephone lines.

However, as broadband provides an always-on connection, there’s a greater risk that businesses could receive spam, viruses or be vulnerable to theft or hackers. Unsolicited commercial e-mail (UCE) or unsolicited bulk e-mail (UBE), generally known as “spam”, is a nuisance for internet users, particularly when received in large numbers. In most cases, spam will appear merely as unwanted commercial e-mail – junk e-mail advertising – although at times advertising some fairly distasteful products. These might be get-rich-quick schemes, which attempt to defraud its recipients, pornography and offers to sell prescription drugs. A computer virus (a program designed to alter the way a computer operates, without the knowledge or consent of the user) is a major concern to users as they can erase information.³ The authors of viruses attempt to infect computers with a virus that becomes a source of a great deal more virus-laden e-mail, sent to every e-mail address stored on a computer. Viruses can also attempt to compromise the user’s personal information to third parties – several of them have appeared of late to steal credit card information. There have been a number of viruses that have been designed to turn the systems they infect into “zombies”, to be controlled by the virus authors, typically to send out more spam. One of the most publicised risks to information systems is that of unauthorised access, often referred to as hacking. The DTI Information Security Breaches

means that e-mails appear almost the instant they are sent. Off-site workers or remote offices can be given access to the network by using the broadband connection to set up a virtual private network (VPN). This is an extremely secure system of transferring data because it uses the most powerful encryption technology available.

² ADSL is now available to 84% of UK homes (source: Ofcom, April 2004), which according to BT should reach over 99% by the end of summer 2005.

³ A business’s ISP (internet service provider) may use NAT (Network Address Translation), a protocol that ADSL providers like since a NAT application allows several computers using private IP addresses to use a single IP address to access the internet. Using NAT can make the connection more secure, as a casual intruder will access a router and not the business’s internal network, although NAT is not resilient to all types of attacks. NAT configurations are not suitable for hosting web servers, video conferencing, setting up VPNs and various other internet applications. Routed IP overcomes these usage problems but is more vulnerable and requires firewall and virus scanning back-up. Plus different services have inherent security concerns. Most cable providers have responded to this sharing problem by upgrading networks and equipment to a new standard called DOCSIS (Data Over Cable Service Interface Specification). DOCSIS-compliant modems encrypt traffic from the providers’ communication centres and local hubs to the end user’s PC.

Survey 2002 found that data theft accounted for about 6% of security incidents. A further risk exposure is systems failure, the temporary loss of availability of broadband.

Business can take some basic steps to reduce this risk exposure by: installing firewall software to help prevent outsiders penetrating their system; installing anti-virus software to filter destructive data; keeping the operating system, firewall, virus protection and other software up to date; turning off unnecessary permissions and applications such as FTP (File Transfer Protocol) and mail servers and file and print sharing; looking at the sources of system failure; making sure technical support is available whether this be in-house or by engaging specialist support contractors; and ensuring employees understand the importance of security by making IT security a part of employees' contracts and drawing up and enforcing policies for the use of e-mail and the internet. In addition businesses should not keep information on individual computers as this creates a security risk. Create a robust back-up system. Set up a procedure for making regular complete and partial back-ups. Back-ups should be stored off-site and kept away from heat, moisture and magnetism.

Video conferencing

The concept of video conferencing⁴ was first developed by the US firm AT&T. Video conferencing systems were first offered commercially in Japan in 1984. Its selling point is that it is a tool that offers competitive advantage through improved communication. Some argue that video conferencing equipment will soon become as common as the telephone as businesses will not want to face the risk of being as outdated as companies without fax machines were in the late 1980s. It provides a means of communication that is obviously richer providing more intense human interaction than a telephone conversation but possibly is not as good as a face-to-face meeting.

The initial problem with video conferencing was that as it generated such large amounts of data, it consumed incredible amounts of bandwidth.⁵ The arrival of ISDN⁶ and its gradual implementation by the telephony companies together with the compression of bandwidth gave a lifeline to video conferencing. Unfortunately ISDN is an imperfect network technology as there is a need for multiple ISDN channels to support the high bandwidth needed (even after compression), line drops, different delays between channels and the high cost of a call and the need to install ISDN lines into all premises that required a link. ISDN has formed the basis of group video conferencing (GVC) systems. These are usually located in a specific room within a business that has to be reserved in order to schedule when they are used. This is restrictive and takes away the spontaneity of using video conferencing. All information such as audio, data and video is transmitted in digital form at high speed over the public switched

⁴ The key advantage of video conferencing being that it saves considerable travelling time and cost for geographically dispersed groups that wish to communicate either within a business, business-to-supplier, business-to-customer or business-to-business. It removes the risk to individuals in travelling to remote locations. It enables employees to build closer relationships with colleagues despite geographical distance. Employees benefit personally, as it eliminates the stress or tiredness that can be brought about through long haul travelling. It increases the proportional productivity and efficiency of employees as they spend less time travelling and more time working. It improves communications in organisations. It enables more personal contact between employees and colleagues at remote locations. It facilitates organisation-wide improvement in sharing best practice, performing tasks and managing projects. Vast geographical distances can be bridged in no time at all. It also provides the opportunity for more individuals to be involved in decision making.

⁵ Bandwidth: bandwidth is the data capacity of a service, measured in thousands of bits per second (kbps) or millions of bits per second (Mbps). In video conferencing systems a larger bandwidth is used to spread or "dither" the signal in order to prevent interference.

⁶ ISDN stands for Integrated Services Digital Network and an ISDN line is similar to a standard telephone line and provides a digital connection to a communication network at a speed of about 128 kilobytes per second.

telephone network (PSTN). Normally conferences are between two participants (known as point-to-point, a conference with two groups and a single information path between each group). Protocol H320⁷ is the established standard using dedicated ISDN lines and relates to point-to-point. Technology now allows several groups of people to participate. A multipoint control unit (MCU) connects and manages all the ISDN lines. Multipoint is a conference with three or more groups involved and multiple information paths between the groups. These two types of video conferencing, point-to-point and multipoint have their own protocol.⁸

However, with the rise of IP (Internet Protocol)-based communication platforms there has been a migration of video conferencing from ISDN to IP. This has arisen because systems are less expensive, IP networks do not have to pay per minute usage fees (they are free of charge), there is significantly higher reliability (as ISDN uses a combination of data channels), there is improved convenience (easier to install) and enhanced audio and visual quality (through far greater bandwidth). IP forms the basis of desktop video conferencing (DVC) systems, which are PC based. The popular transport media used for desktop video conferencing are: LAN (local area network), WAN (wide area network) internet, ADSL (Asynchronous Digital Subscriber Lines) and VPN (virtual private network). They all have strengths and weaknesses. With a LAN the bandwidth is significantly more than ISDN, the video quality is much higher approaching that of television. Like LANs, the internet, VPNs, ADSL are other forms of TCP⁹/IP networks and hence can be used as transport media in desktop conferencing systems. Protocol H323¹⁰ is a newer standard using the Internet Protocol (IP) to carry information for point-to-point and many-to-many communications.

There are a series of risks associated with video conferencing and they predominantly relate to technology rather than human interaction issues. Systems that want to talk to each other must be compatible. For instance without pre-planning there is the risk that systems adopted do not conform to the telecommunications standards set by the United Nations agency known as the International Telecommunications Union (ITU) and/or the Internet Engineering Task Force (IETF) and hence are not compatible. The bandwidths do not keep up with the pace of change in video conferencing technology. User expectation levels are not aligned to what is realistically possible from the available systems.

E-commerce

Electronic commerce or e-commerce is the buying and selling of goods on the world wide web. It is doing business electronically. Other terms that are used when talking about e-commerce are B2B and B2C, shorthand for business-to-business where companies do business with each other and business-to-customer, where companies do business with customers using the internet. These are considered to be the main forms of e-commerce. The biggest volume of trade on the internet is business-to-business. Technology companies such as Cisco and Oracle have been among the first to transfer their purchasing and indeed most of their sales to the web.

⁷ H.320 is an ITU (International Telecommunications Union) umbrella standard that is used to describe visual and audio communications systems over "narrowband". In video conference terms, it is used to denote video conferencing over an ISDN link/line.

⁸ A protocol is the standard set of rules that enables video conferencing units to "talk" to each other.

⁹ TCP (Transport Control Protocol) is a reliable protocol designed for transmitting alphanumeric data. It can stop and correct itself when data is lost. There are other standards-based transport protocols used with conferencing such as UDP (user datagram protocol) and RTP (real-time protocol). Generally each configures data into packets, with each packet having a "header" that identifies its contents. Each offers a different degree of reliability.

¹⁰ H.323 is an ITU (International Telecommunications Union) umbrella standard that is used to describe multimedia communications systems over IP (Internet Protocol)-based network infrastructures. In video conference terms it is used to describe video conferencing over IP networks.

Online retailing is often referred to as e-tailing. Possibly the best known example of an e-tailer is Amazon whose name has become synonymous with e-commerce. Bricks-and-mortar refers to companies with traditional outlets. Bricks-and-clicks refers to companies that use a mixture of offline and online channels. The internet is radical as it makes a difference to a whole range of managers' day-to-day activities such as locating a new supplier, collecting customer data, obtaining news updates and exploring new markets. The changes that the internet brings are simply more pervasive and varied than anything that has gone before.

In the summer of 1999 Larry Ellison, CEO of Oracle, announced that the company would cut \$1 billion from its global corporate expenses of \$7 billion. "I've been in business for more than 30 years, and I think this is far the biggest productivity advancement I've seen in my life", commented Jeff Henley, Oracle's chief financial officer (Percival-Straunik 2001). If customers can submit electronic orders, it saves a business considerable resources normally required to implement the process. In addition customers can track the progress of their orders for themselves. Businesses that are out there early are not just getting ahead of the learning curve. They are redefining business boundaries. For instance Amazon.com, the internet online bookseller, since its foundation 10 years ago, has transformed itself from a simple bookseller into one of the world's biggest online retailers, selling everything from DVDs to kitchen appliances. Search engine advertising in particular has proved to be very lucrative. Google reported earnings considerably ahead of target early in 2005. The company's revenues in the final quarter of the preceding financial year were 28% higher than the preceding quarter. After its earnings announcement, its stock market value leaped to \$57bn and its share value jumped by 9%.

E-mail

E-mail has become an indispensable tool in our daily lives. Communication is now almost instantaneous. E-mail is now taken for granted just the same way PCs are. Coca Cola was one of the first companies to establish worldwide communication with its own custom e-mail system in the 1980s. Now e-mail is ubiquitous. It flattens the hierarchical structure of an organisation. It encourages people to communicate and express their opinions. Senior managers have become more accessible. E-mail and telephone communication are changing the requirement for employees to have to live close to work (although not until the integration of the phone and PC so that you can see who you are talking to, will it overcome the solitary nature of home working and make remote interaction with colleagues and customers possible). Internal communication within businesses can be facilitated by attaching links to pages in the intranet to e-mails sent to staff. While e-mail is invaluable, the dependence placed upon it causes considerable disruption when its availability is temporarily removed. The e-mail server must have the same power back-up and support services that are provided for other major business systems. E-mail must be protected from viruses, unsolicited e-mail known as "spam" or "junk mail" and various strains of virus, which were discussed under the heading "Broadband" above.

18.5.3 Control technology

Specific computer-based production control systems include:

- Computer aided design (CAD) is the use of computers to assist in the production of designs, drawings and data for use in the manufacturing process. It increases flexibility and speed.

- Computer aided manufacture (CAM) is the use of computers to support the manufacturing process. It improves speed and quality and reduces costs.
- Flexible manufacturing systems (FMS) is an important concept made possible by numerically controlled machines, affecting the integration of manufacturing cells, productivity and quality, in a wide variety of strategic industries.
- Mechatronics is the combination of microelectronics and mechanical engineering together with computer technology.
- Computer integrated manufacture (CIM) uses IT to integrate one or more parts of the manufacturing process. For example, design and production (CAD and CAM).
- Manufacturing resource planning (MRP) can be described as both a computerised planning system and an inventory management model.
- Operations research ("OR"), also known as management science ("OR/MS"), looks at an organisation's operations and uses mathematical or computer models, or other analytical approaches, to find better ways of doing them. Operational research consultants use analytical tools to aid decision making such as critical path analysis, production, scheduling, Markov chains, queuing theory, replacement, simulation, stock control, dynamic programming, decision theory and theory of games.

CAD

Computer aided design (CAD) has traditionally been a computer aided system for drafting, creating and communicating a 2D design, or 3D model, for a product or components of a product. Heavily used in the electronics, mechanical engineering and construction industries, CAD seeks to visualise a design (a concept) before manufacture. This design can then be tested and evaluated (e.g. physical shape, size and volume, aesthetic attributes, fluid dynamics, material suitability and conductivity) prior to manufacture. The key concept of CAD is the representation of an idea or concept using the most appropriate ICT tools for the product that is being designed. CAD is delivered through the use of software. The risks associated with CAD relate predominantly to the use of the software rather than the software itself. The more well-known products have been available for many years now and have been constantly developed and hence can be considered robust.

The hardware used to support CAD must have sufficient memory and processor speed. The largest risk associated with CAD is that the benefits that should be delivered are not realised. There are a host of reasons why this might arise. This can stem from inadequate training of the users, the choice of the wrong software product for the task in hand, or the way the users work together.

A key characteristic of design in all industries, without exception, is the degree of specialisation that is taking place and hence designs are produced from several discipline specialists. The integration of the designs of the specialists holds the key (in the most part) to the quality of the design produced. In advance of the preparation of the design the layering conventions have to be agreed. A single drawing will be made up of multiple layers and each layer, for example, may contain the design of a single discipline (for building design there may be architectural, structural, mechanical, electrical, drainage and acoustic layers). The coordination of the information contained on the layers will reflect directly on the design and rework may be required to correct deficiencies. Additionally information must be produced in a particular sequence and when the information is not available from one discipline to suit the program the whole design is delayed. If one designer omits information, which has to be added later, each of the other disciplines may have to modify their design to coordinate with the change.

CAM

Computer aided manufacture (CAM) is the computer control of manufacturing production machines, ranging from computer numerical control (CNC)¹¹ machines to high-performance programmable industrial robots, which can perform a variety of industrial tasks. CAM is commonly linked to CAD systems. The resulting integrated CAD/CAM system then takes the computer-generated design drawings and converts them directly into instructions for the production machines within the overall manufacturing system, optimising consistency between design and finished product. The development of computer-aided design had little effect on CNC initially due to the different capabilities and file formats used by drawing and machining programs, but as CAD applications such as SolidWorks and AutoCad began to incorporate CAM intelligence, and as CAM applications such as MasterCam adopted sophisticated CAD tools, design and manufacture became more integrated.

The commonly used examples of CAM often refer to engineering processes, such as car manufacture. An advantage of CAM is that it can be used to facilitate mass customisation: the process of creating small batches of products that are custom designed to suit each particular client. Without CAM and the CAD process that precedes it, customisation would be a time-consuming manual and costly process. However, CAD software allows for easy customisation and rapid design changes whereas the automatic controls of the CAM system make it possible to adjust the machinery automatically for each different order. Box 18.1 describes an example of investment by a US car manufacturer in robots to secure this ability to quickly change product lines to respond to the loss of competitive advantage. The key risks associated with CAM are the lack of full integration with CAD, a lack of investment in CAD/CAM, insufficient investment in research and development, losing sight of the developments in CAD/CAM and how they may improve productivity and/or create competitive advantage, not reflecting customer preferences in product lines and not benchmarking output against competitors. Laid over these risks are the typical operational risks of outsourcing, maintenance regimes, maintenance contracts, business continuity, security and protection of intellectual property.

FMS

Flexible manufacturing systems (FMS) aim to integrate the use of flexible automation equipment such as NC machine tools and industrial robots and achieve improved efficiency in the small-scale production of a large number of products. The serious efforts made to shorten the

¹¹ CNC machines existed as far back as the 1950s. They used the existing technology of the day – paper tapes with regularly spaced holes punched in them to feed numbers into controller machines that were wired to the motors positioning the work on machine tools. The electromechanical nature of the controllers allowed digital technologies to be readily incorporated as they were developed. By the late 1960s numerically controlled (NC) machining centres were commercially available incorporating a variety of machining processes and automatic tool changing. Such tools were capable of doing work on multiple surfaces of a workpiece, moving the workpiece to positions programmed in advance and using a variety of tools – all automatically. In addition, the same work could be carried out over and over again with extraordinary precision and very little additional human input. NC tools immediately raised automation of manufacturing to a new level once feedback loops were incorporated (the tool tells the computer where it is, while the computer tells it where it should be). What finally made NC technology enormously successful was the development of the universal NC programming language called APT (Automatically Programmed Tools). Announced at MIT in 1962, APT allowed programmers to develop postprocessors specific to each type of NC tool so that the output from the APT program could be shared among different parties with different manufacturing capabilities. In a production environment, a series of CNC machines may now be combined into one station, commonly called a “cell”, to progressively machine a part requiring several operations. CNC machines commonly control activities such as welding, soldering and milling machines. CNC machines represent a special segment of industrial robot systems, as they are programmable to perform many kinds of machining operations (within their designed physical limits, like other robotic systems). Source: “What is CAD/CAM?”, Harvard Design School, *Computer Resources Manual*, to be found on www.gsd.harvard.edu/inside/computer_resources/manual/cadcam/whatis.htm.

Box 18.1 CAM and the use of robotics**Flexibility in production**

It was recently announced that DaimlerChrysler were borrowing a page from Toyota's book and retooling its factories with robots that can switch from building one model to another model in 42 seconds. These new robots would allow Chrysler to build two or three models on the same assembly line. The first plant to be retooled with the flexible robotic system is a Neon factory in Belvidere, Illinois, at a cost of around \$415 million. Vice president of manufacturing Frank Ewasyshyn was open with the press in disclosing that the inspiration for the retooling had come from their competitor Toyota. The more flexible plants will allow Chrysler to respond more quickly to shifting market demands. Pilot models can be more easily assembled and existing models can be modified to meet niche markets. Increased flexibility is critical in the current highly fragmented automobile market. Traditional product lines had all but disappeared as consumers demand a wider range of choices. Most automakers only produce between 70 000 and 100 000 units of a model every year and some niche models, like Chrysler's Viper, have annual runs of 5000 vehicles. This flexibility in production is set to continue. Dr Ken Young, chairman of the Warwick University-based British Automation and Robot Association (BARA), has advised that advances to give robots "eyes" will mean that they could soon do much more. The new "vision systems" would equip robots with a camera, which would then be used to take a picture which could then be analysed by the robot. The new technology – expected to come into use in three or four years – would have a massive impact, said Dr Young, as they would soon be far more flexible in what they could and could not do. "In the past robots have only been able to do exactly the same thing, but now they can adapt what they are doing to whatever is in front of them," he said. It would have enormous benefits to businesses. Robotics are seen as key to business development. The BBC reported that in the third quarter of 2004, 507 robots had recently been bought. Their use being key to the car industry was demonstrated by the fact that of the 507 sold, 400 had been bought between two car manufacturers: Toyota based in Derbyshire, and BMW based in Oxford.

Based on: Yahoo News, Wednesday, 3 August 2005, "DaimlerChrysler Borrows Page from Toyota's Manufacturing Book" and BBC News report "Sales of Robots Hit Record High", 18 October 2004.

time between design and production by enabling the data prepared by CAD to be used by CAM. These efforts are symbolised by the term CAD/CAM.

Mechatronics

Mechatronics is a term coined in Japan, which describes the combination of microelectronics and mechanical engineering (Technova 1983). Mechatronics was first used in terms of the computer control of electric motors by an engineer at Japan's Yaskawa Electric Company in the 1960s (Ashley 1997). While innumerable definitions of Mechatronics are offered, the favoured definition adopted here is that offered by Loughborough University (UK), which states "Mechatronics is a design philosophy that utilizes a synergistic integration of Mechanics, Electronics and Computer Technology (or IT) to produce enhanced products, processes or

systems.” The UK Institution of Mechanical Engineers stresses that Mechatronics is not just the combination of disciplines but a fundamental way of looking at doing things, a total synergy. On its website¹² the institution states “First and foremost Mechatronics should be seen to represent technology integration and not merely a combination of the primary disciplines. In fact the ‘fusion’ of mechanical, electronic and computer based structures into a complete Mechatronics ‘product’ can only achieve its desired functionality through a process of systematic integration of all inherent disciplines involved right through from the inception stages.”

The use of Mechatronics by Japan (a country with scarce natural resources whose economy is dependent on exports) saw the launch of a formidable challenge to the dominance of the US and Europe in the electrical goods market. After massive investment Japan was able to produce large quantities of very precise machinery at low cost with very high quality and reliability. Mechatronics opened up enormous technological possibilities. The developments in Mechatronics over the last 40 years has been startling and the pace of change formidable. Current examples of Mechatronics are computer disk drives and the increasingly sophisticated and ever smaller camcorders and compact disc players. These would never have been plausible by adopting a traditional single disciplinary or combined approach.

Significant to the development of Mechatronics has been computer aided design and manufacture (CAD/CAM) discussed above, which is described as the core technology of Mechatronics. The risk for manufacturers immersed in producing products, which embrace Mechatronics, is the rate of change. The introduction of new products by competitors can make some products obsolete almost overnight. The home entertainment market is a prime example. Significant sums have to be invested in research and development and new products may have a very short life before more advanced products are placed on the market by competitors.

MRP

MRP is essentially a spreadsheet tool that converts sales forecasts into purchasing requirements for materials and components, and plans actual production. The techniques of MRP can be utilised in the manufacturing of goods involving a number of stages in the production process. The stock levels of raw materials, single components and subassemblies and finished goods are analysed in the MRP approach. In essence much of the demand can be accurately predicted when the demand of the finished product is known. For instance, an order for a specific customised model of a sports car received by BMW results in the exact requirements of the subassembled components such as body panels, which determine the raw materials requirements such as steel and types of paint. The control of stock where the demand of one item depends on the demand of a higher order item and all relevant links are employed can be achieved using MRP. The system would automatically generate orders for given items based on the demand of finished goods.

Operational research

Perhaps the base way to describe OR is to use case studies. The studies cited here are drawn from the website of the Operational Research Society’s website www.theorsociety.com. The first relates to improving the speed of car body production at PSA Peugeot Citroën. To set the

¹² www.imeche.org.uk.

study in context PSA Peugeot Citroën is the sixth largest car maker in the world and the second largest in Europe. “In 1998, to meet its new CEO’s ambitious targets for growth, innovation, and profitability, PSA decided to focus on bottlenecks in the car body shops in its plants. The shops’ single flow architecture limited PSA’s ability to handle diverse models, and ingrained beliefs and practices in production line design were causing inefficiency. The car body production line needed a new architecture that could handle model diversity and new car launches easily and quickly, and a method of sustaining quick innovation without overinvestment. Solving these problems would require operations research expertise in simulation, Markov chains, and sophisticated analytical methods.” The PSA OR team used a multi-method approach to evaluate performance, developing an iterative three-step design process that took advantage of the speed of analytic methods and the accuracy of simulation.

The OR tools improved throughput with minimal capital investment and no compromise in quality – contributing \$130 million to the bottom line in 2001 alone. PSA personnel, initially sceptical about OR, had the opportunity to compare the results that the analytical methods predicted with the actual outcomes. Persuaded by the accuracy of the forecasts, they and other PSA divisions adopted the tools and initiated further OR projects. Christophe de Baynast, Director of Car Structure Entity at PSA, declared “We expect \$130 million revenue gain just from this improvement. Other benefits due to this work include aid in decision making and forecasting, more accurate and faster shops’ design, and better knowledge of manufacturing systems in our staff and our suppliers.”

The second study relates to Air New Zealand’s need to improve the way it scheduled tours of duty and rosters. The challenge consisted of two problems: a tours-of-duty planning problem to generate minimum-cost tours of duty (sequences of duty periods and rest periods) to cover all scheduled flights, and a rostering problem to assign tours of duty to individual crew members. Solving these problems required operations research expertise in complex scheduling and routing. Air New Zealand staff and consultants, in collaboration with the University of Auckland, developed eight optimisation-based computer systems to solve all aspects of the tours-of-duty planning and rostering processes for the airline’s national and international operations. As of 2000, these systems had saved NZ\$15 655 000 per year while providing crew rosters that better respect crew members’ preferences.

18.6 RESPONDING TO TECHNOLOGY RISK

18.6.1 IT governance

According to Thomas (2005) the idea of IT governance has come about as a way of imposing order on chaos. While chaos may be too strong a word, there have been a number of spectacular IT failures, particularly in the public sector. There is conviction that careful management of risk has a direct relationship with the success of any business, as expressed by Paul Beach (head of corporate banking at Atos Consulting): “If shareholder value is coming out of your IT, then good corporate governance of that is absolutely vital because a risk poorly managed could drive that value away” (Thomas 2005). Without a doubt, with the pervasive use of IT within businesses, its use has created a critical dependency for business operations. In addition, an increasing number of businesses rely on their IT for competitive advantage or hope to successfully leverage IT to achieve competitor advantage. Hence boards need to extend governance to include IT. Business IT governance is all about boards exercising a set of responsibilities and practices with the view

to providing strategic direction, ensuring the IT objectives are achieved, ascertaining that the risks are managed and verifying that the businesses IT resources are appropriately deployed.

The definition of IT governance used by the Control Objectives for Information and Related Technology (COBIT)¹³ standard, which is issued by the IT Governance Institute, is “a structure of relationships and processes to direct and control the enterprise in order to achieve the enterprise’s goals by adding value while balancing risk versus return over IT and its processes”. To accomplish IT governance the development of an IT framework is required which describes the benefits and opportunities sought, the current IT capability and any shortfall and corresponding investment needs, accountability, funding, rules on the use of the system, risk, control processes and effective systems. Some believe the primary focus if IT governance is risk management. Jay Heiser (research director at Gartner Research Group) considers “Governance is that whole area of controlling unwanted activity.” He argues that IT governance is largely about managing and reducing risk – making sure that systems are secure from viruses or unauthorised access, for example, or making sure that regulatory requirements are not being breached (Thomas 2005). But the benefits of risk management are much broader than this. The IT Governance Institute states that successful enterprises understand and manage the risks and constraints of IT. Managing IT risk involves looking at the risks to business performance arising from IT systems. Approaches that businesses may use to ensure that this risk is minimised and appropriately assigned include the following:

- Setting the IT risk appetite for the business which will then inform decisions on such matters as outsourcing, system integration, insurance, security and business continuity.
- Maintaining a risk register, proactively managing the risk response actions and regularly reviewing the high-level risks at board meetings.
- Assigning clear risk accountability. For enterprises this means being aware that final responsibility for risk management resides with the board. So that while the board may wish to delegate responsibility for aspects of risk management they are responsible for overseeing its successful implementation. The board cannot abrogate its responsibilities.
- Being aware of the fact that a transparent and proactive approach to risk management can create competitive advantage.
- Insisting that risk management is embedded in the management structure so that the business is able to respond quickly to changes in risk profiles by managers knowing in advance how managers are to escalate risk information through the organisation, what to report, when to report, to whom and in what format (how much detail).
- Understanding whether IT is aligned to the business objectives and how critical IT is to growing the business.
- Understanding the IT fit. No business can stand still and survive. Hence is there an understanding of how IT systems must change to reflect and be aligned to organisational change.
- Understanding whether IT projects overrun, exceed their budgets, fail to satisfy end-user needs or require expensive ongoing maintenance.
- Understanding how robust return-on-investment studies have been for IT expenditure.

¹³ COBIT (Control Objectives for Information and related Technology), issued by the IT Governance Institute (ITGI) and in its third edition, is internationally accepted as good practice for control over information, IT and related risks. COBIT is used to implement governance over IT and improve controls. The IT Governance Institute (ITGI) (<http://www.itgi.org/>) was established in 1998 to advance international thinking and standards, in directing and controlling an enterprise’s IT. ITGI offers symposia, original research and case studies to assist enterprise leaders and boards of directors in their IT governance responsibilities.

- Conducting lessons learnt workshops on completed IT projects and ensuring managers of subsequent projects appraise themselves of the content of the lessons learnt reports.
- Ensuring the board is aware of the latest developments in IT and whether a lack of investment would erode market share or their business.
- Being clear about both the risks and opportunities associated with new technology, outsourcing, integrating legacy IT systems within acquired companies with existing IT systems, adoption of new business models and e-commerce.
- Avoiding an overdependence on a single vendor by analysing the IT industry¹⁴ and identifying alternative suppliers.
- Ensuring IT risk is aggregated so that risk management effort can be prioritised and there is an awareness of the consequences of risk mitigation action. That is, the reduction in one risk does not increase risk exposure elsewhere in the business to the extent that the overall business IT risk is increased.
- Ensuring comprehensive two-way communication. IT practitioner language can be an obstacle to communication. IT managers must be adept communicators and hence where necessary must sharpen their language and presentation skills to ensure the full business implications of IT are communicated. Decision making by the board will be dependent on the quality of the information it is supplied to make those decisions and the board's capacity to make such judgements. The board needs to know how much IT risk the organisation is taking.

18.6.2 Investment

There are still widespread concerns that IT projects are not delivering against targets. Recent research by Accenture, based on interviews with 300 executives in the UK and Ireland identified two main concerns over IT development projects. Andrew Morlet, head of the strategic IT effectiveness group at Accenture, explains "First there was a strong consensus that IT spending is going up and the alignment between business and IT is improving. But second there is still a belief that IT is not delivering against investment" (Manchester 2005). The essential features of investment decisions, irrespective of who is to make the decision, are time and cost. Investment involves making an outlay of something of economic value, usually cash, at one point in time which is to yield economic benefits to the investor at some other point in time. Typically the outlay precedes the benefits. In addition the outlay is typically a large single amount and the benefits arrive in a stream of smaller amounts over a fairly protracted period. However, it is common for a chief executive to be charged with accomplishing certain improvements in bottom-line performance within a given timeframe.¹⁵ Hence right from the outset there may be pressure on a project to show quick improvements in performance and/or costs. IT projects

¹⁴ As described by Gates: "The realignment of the computer industry from vertically integrated vendors to horizontally integrated, customer-driven solutions has brought prices down dramatically and offered more choice. In the old vertically integrated computer industry, a customer would buy almost all of the elements of a solution from a single company – the chips, the computer systems built on the chips, the operating system, the network, hardware and service. Every vendor – IBM, Fujitsu, HP, Digital, NCR and others – had its own vertical solution. Sales volumes were low, and prices were high. Integration among vendors was difficult and expensive. Switching costs for customers were very high since every piece of the solution would have to change. These vertically integrated vendor solutions are being displaced by the PC approach in which specialised companies give customers a choice in each of the infrastructure layers: chips, computer systems, system software, business applications, networking, systems integration and service" (Gates 1999).

¹⁵ It is interesting to note that when Coca Cola's CIO, Bill Herald, conducted the company's first ever information strategy review in 1997 to align with the company's business strategy the company came to realise that despite its earlier investments, it too often treated information technology as an expense to control rather than as an enabler of better business. As a result of this realisation the thinking at Coke moved from a preoccupation with savings to sharing information globally so that individuals did not reinvent the wheel (and spend time recreating information already available in the company) (Gates 1999).

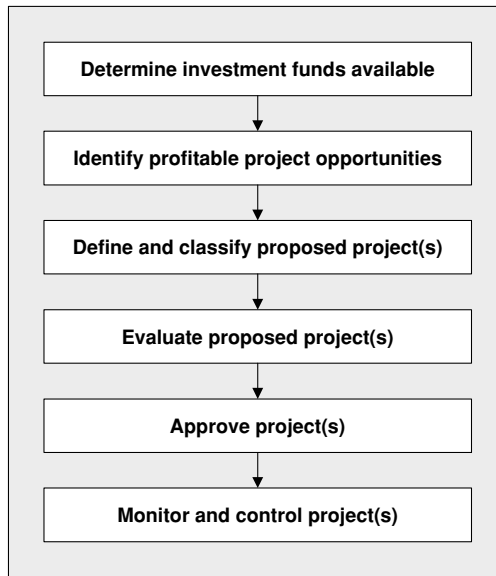


Figure 18.2 The investment decision-making process

are commonly evaluated from a risk and benefit perspective where risk is associated with the degree of certainty over accomplishing the time, cost and quality parameters. The investor seeks to understand the predictability in returns in terms of the business benefits, the life of the asset and the maintenance costs of the asset during its useful life.

It is possible to see the investment process as a sequence of six key stages (see Figure 18.2). Each of the stages must be given proper consideration by managers. There are a number of inherent risks in any investment process. The common risks include lack of stakeholder involvement, lack of adequate end-user consultation, insufficient project definition, poor assessment criteria, inadequate time devoted to the selection process, lack of adequate assessment of the implementation and in-use risks and insufficient input from IT specialists.

Determine the investment funds available

The board commonly determines the amount of funds available for IT investment within a business. Usually the limit on available capital for any one period will mean that the funds available will not be sufficient to finance all of the projects identified. When this occurs some form of “capital rationing” has to be undertaken. This means that managers are faced with the task of deciding on the most profitable use of the investment funds available. The projects may consist of new IT projects to support new processes or projects to replace existing hardware and software to reduce operating costs and improve overall business bottom-line performance.

Identify profitable project opportunities

An important part of the investment process is the search for profitable investment opportunities. However, management may have submitted so many proposals and are clamouring for funding that this task is quickly executed. It may be simply a gathering process.

Defining and classifying proposed project(s)

This stage of the process aims to convert promising ideas into full-blown proposals. This means that further information will be required, much of it of a detailed nature. The first stage will involve collecting enough information to allow a preliminary screening. Many proposals fall at this first hurdle because it soon becomes clear that they are unprofitable or unacceptable for other reasons. Proposals that are considered worthy of further investigation continue to the next stage.

Evaluate proposed project(s)

Once a project has passed the preliminary screening stage and has been fully developed, a detailed evaluation is usually carried out. For projects of any size, this will involve providing answers to a number of key questions including the following:

- What is the nature and purpose of the project?
- What are the perceived benefits and how were they determined?
- Does the project align with the overall objectives of the business?
- How much finance is required and does this fit with available funds? If this is not a hard number what is the spread around the most likely figure?
- What other resources are required for the successful completion of the project (such as number of employees or external vendors)?
- How long will the project last, what are the key stages of the project and does the timescale reflect the CEO's requirements?
- What is the expected pattern of cash flow/expenditure?
- What are the interfaces with existing or planned projects?
- What are the key implementation issues?
- How quickly will the benefits be realised? Will they be instantaneous once the new system is in place or will they incrementally accrue?
- Has risk been taken into account in the appraisal process and what was the outcome?
- What is the expected return on investment?

A key evaluation method is return on investment (ROI). An ROI calculation in an IT context provides a business with an estimate of the percentage return that it will make over a specified period, as the result of investing in a new computer system. The ROI is typically calculated as:

$$\% \text{ ROI} = \text{benefits/costs} \times 100$$

To be meaningful the return must be stated as occurring within a particular timeframe/payback period. The opportunity cost must also be considered. This is the financial gain that would have been made if the sum of money assigned to the IT project were invested elsewhere, such as in a bank. For reliance to be placed on the ROI calculation the two key components, current costs and anticipated cost, must be fully calculated, capturing all of the contributory costs.

An example of an ROI estimate for a replacement system, looking at a three-year period, is as follows:

$$\% \text{ ROI} = \text{benefits/costs} \times 100$$

$$\% \text{ ROI} = \frac{(\text{current annual costs}) \times 3 - ((\text{new estimated annual costs} \times 3 + \text{risk}) + (\text{implementation costs} + \text{risk}))}{(\text{current annual cost}) \times 3} \times 100$$

The current annual costs must take account of the existing software licence costs, software support, hardware support, employee costs, overheads (rent and/or building running costs) and any other maintenance costs. The investment costs will include the hardware and software purchased costs, installation costs, the cost of removal of any redundant hardware/software and any consultancy fees. The new estimated annual costs will comprise the software licence costs, software vendor support, hardware vendor support, employee operators and overheads such as rent and building running costs.

Jordan and Silcock (2005) describes what they call “Investment traps whereby projects do not live up to expectations and the business benefits envisaged at the outset of a project are not realised”:

- Project overspend increases the initial outlay;
- Project runs late and the achievement of business benefits is deferred;
- Business take-up and usage is less than planned, diminishing business benefits;
- A merger or acquisition requires significant redevelopment effort to accommodate the unforeseen needs;
- System is more costly to support, maintain and enhance than planned increasing costs and lowering net benefits;
- Business requirements change or system requires replacement sooner than planned, reducing the asset’s useful life.

Approve project(s)

Once the manager(s) responsible for authorising the investments are satisfied that the project should be undertaken, formal approval can be given. However, a decision on a project may be postponed if more information is required from those proposing the project or if revisions are required to the proposal. In some cases the project may be rejected if it does not provide a return on investment.

Monitor and control project(s)

Making a decision to invest in new IT support does not automatically cause the investment to be progressed and be implemented without problems. Managers will need to actively manage the project through to completion. Managers should receive progress reports at regular intervals concerning the project. The reports should provide information on the status of the project in terms of actual expenditure against planned expenditure, actual progress against planned progress, the effectiveness of risk management actions and any changes to the brief. In extreme cases managers may abandon the project if circumstances appear to have changed dramatically for the worse.

18.6.3 Projects

There is abundant evidence that IT projects have a poor track record in delivery against their objectives. The delivery objectives, as with projects across other industries, are typically time, cost and quality (including functionality) (Jordan and Silcock 2005).

When a project is late and it is allowed to slip then the business is deprived of the planned benefits for longer. Projects that are late but are not permitted to miss their completion date

attract inherent risks in terms of their functionality, operability and maintainability. They do not deliver all that they were planned to deliver and there are operational problems that require rectification. A functionality and quality gap will amount to a loss of benefits. When the project is solely for internal use, operational problems reduce efficiency. Depending on the scale of the project this shortfall may be a minor performance issue or a loss of automation resulting in a far lower reduction in headcount than had been hoped for, with significant cost implications. When projects are outward facing and are at the interface with the general public, business partners or suppliers, the ramifications of poor performance can damage a business's reputation. Projects that are late or struggling from the right mix of personnel often request more project funds. Each time more funds are awarded the initial benefits become diluted. The cost of slippage is the sum of the direct costs of in-house resources retained longer, the costs of consultancy support (if the reason for delay lay with the sponsor), the indirect costs of lost business benefits for the period of the slippage and the impact on any dependent projects. When a high proportion of the original budget has already been spent, which may already amount to several millions and an application is made for more funding which puts the project on the limit of acceptability (and there is no certainty on the final outturn cost), the decision to abandon the project can be very difficult. To overcome poor project experiences there is a school of thought that "big and ugly" projects should be abandoned for a set of interlinked "small and beautiful" projects. However, this introduces the problem of managing a programme of interdependent projects with a different set of risks which may represent a significant challenge to manage.

When a project fails there is a "lost opportunity" risk where the original objectives of the project have not been met and the previously identified shortcomings have not been addressed. In addition if the money invested in the project had simply been invested in a bank it would have earned interest. Additionally the money could have been invested in another project. Jordan and Silcock (2005) describe a further negative outcome of failed projects as "collateral damage" risk. This risk they describe as referring to project team members who suffer a crisis of confidence and lose the trust of the planned recipients of the project.

18.7 SUMMARY

This chapter examined three technologies collectively described as "primary technology types". These are information, communications and control technology. Risks are identified against all three technologies; however, all types present businesses with very significant opportunities and the potential to achieve competitive advantage. Hence one of the most serious risks to a business does not emanate from the technology itself but from a lack of investment in IT. Communication is now predominantly via broadband and e-mail. While this communication method provides an exchange of information at a speed hitherto unattainable, it was highlighted it has inherent risks. As broadband provides an always-on connection, there's a greater risk that businesses could receive unsolicited commercial e-mail (spam), viruses or be vulnerable to theft or hackers. While video conferencing is now more permissible through greater bandwidths, there are a series of risks that can undermine its performance such as lack of compatibility of systems, bandwidths not keeping pace with video technology and user difficulties.

The experience of Oracle and others have found that e-commerce has cut millions of dollars from their global corporate expenses and it has been described as the biggest productivity advancement for 30 years. The risk for businesses in not taking advantage of this technology is that competitors will steal such a march on their rivals and late-comers will have considerable difficulty in playing "catch-up". Likewise CAD/CAM linking design with manufacture

combined with MRS and operational research (to create optimum processes and configurations of plant) provides businesses with the most sophisticated production capabilities available. Car manufacturers have found that without the very latest robots they cannot achieve the versatility in production runs that competitors can achieve. Hence the risk again is being left behind due to a lack of investment. IT investment, the common factor across all businesses, while having the potential to drive business improvement, can be a business's Achilles' heel. Hence the continuing attention being given to IT governance. A number of high profile IT project failures clearly demonstrates that IT projects are exposed to considerable risk and the discipline of project management has not yet had broad-based success.

18.8 REFERENCES

- Ashley, S. (1997) "Getting a Hold on Mechanatronics", *Mechanical Engineering Magazine*, The American Society of Mechanical Engineers, found on www.memagazine.org.
- Earl, M. (1997) "Managing in the Information Era", in *Financial Times Mastering Management*, executive editor Tim Dickson, editor George Bickerstaffe, Pearson Education Limited.
- Gates, W.H. (1999) *Business @ the Speed of Thought, Succeeding in the Digital Economy*, Penguin Books Limited, London, England.
- Higginson, J. (2005) "Car Number Plates will get Spy Tags", *Metro*, 30 September 2005.
- Jordan, E. and Silcock, L. (2005) *Beating IT Risks*, John Wiley & Sons Ltd, Chichester, England.
- Manchester, P. (2005) "A Change in Attitude Helps Prevent Project Failure" 17 June, *Financial Times*, UK.
- Percival-Straunik, L. (2001) *E-Commerce*, The Economist Newspaper Ltd, published by Profile Books Limited.
- McLean, M. (editor) (1993) *Mechatronics, Developments in Japan and Europe*, Francis Printer (Publishers) London, London, England.
- Thomas, K. (2005) "A New Era of Accountability", 17 June 2005, *Financial Times*, UK.

Part V

External Influences – Macro Factors

Businesses clearly do not operate in a vacuum but in an ever-changing scenario where changes in the operating environment are beyond the control of the individual business. This part of the book examines the way in which *external* “macro” influences impact businesses. These “macro” factors are distinct from “micro” factors by being events that occur at both national and international level. Micro factors influence individual businesses or consumers in the domestic market. An understanding of how these external macro influences impact on a business is important as it provides an appreciation of how a business is provided with both opportunities and constraints. Macro factors include the state of the economy, the environment, the legal framework, political structure, market conditions and social factors. These subjects are discussed in the following chapters and describe the sources of risk included in the risk taxonomy included in Chapter 11, under the heading “Business operating environment”. The sequence of the chapters follows the sequence in which the subjects appear in the taxonomy, as illustrated below.



An extract of the taxonomy is included below for ease of reference and assimilation.

Business Operating Environment

| Economic | Environmental | Legal |
|---|---|---|
| 1. Macroeconomics 2. Microeconomics 3. Government policy 4. Aggregate demand | 1. Energy sources 2. Use of resources 3. Pollution 4. Global warming | 1. Companies 2. Intellectual property 3. Employment law 4. Contracts |

| Economic | Environmental | Legal |
|---|--|--|
| 5. Aggregate supply 6. Employment levels 7. Inflation 8. Interest rate 9. House prices 10. International trade + protection 11. Currency risk | 5. Levies/emission controls 6. Environmental sustainability | 5. Criminal liability 6. Computer misuse |
| Political | Market | Social |
| 1. Contracts 2. Transition economies 3. UK gov. fiscal policies 4. Pressure groups 5. Terrorism and blackmail | 1. Market structure (a) number of firms (b) barriers to entry (c) new entrants (d) homogeneous goods (e) knowledge (f) relationships 2. Product lifecycle stage 3. Alternative strategic directions 4. Acquisition 5. Game theory 6. Price elasticity 7. Distribution strength | 1. Education (a) general level (b) language skills 2. Population movements (a) location (b) age mix (c) pensions (d) “lgrey market” 3. Socio-economic patterns 4. Crime (a) business vulnerability (b) staff relocation 5. Lifestyles + social attitudes |

This chapter examines “economic” risk, the first of the macro influences within the section of the risk taxonomy called “business operating environment” described in Chapter 11. Businesses do not operate in a vacuum. Hence it would be difficult to comprehend an enterprise risk management process that did not address economic risk. The subject of economics relates to the allocation of resources. Economic business risk emanates from the performance of the national economy within which a business operates and the way its government elects to influence the economy and solve the basic economic problem of scarce resources and competing needs. Economics has such a large influence on business performance, that managers must take steps to understand and predict economic phenomena and correspond accordingly. While the subject is vast and it is only possible to examine some of the rudimentary elements of the body of economic theory here, any review of enterprise risk management that did not address those aspects of economics regularly encountered by businesses, would clearly be incomplete. The structure of this chapter is illustrated in Figure 19.1. The next chapter examines the second of the business operating environment risk categories, called “environmental risk”.

19.1 DEFINITION OF ECONOMIC RISK

What is economic risk? There does not appear to be any universally accepted definition. Economic risk is defined here simply as the influence of national macroeconomics on the performance of an individual business. Implicit within national macroeconomics is the modifying influence of government policy through the manipulation of aggregate demand and consumer spending. The essence of economic risk is that any one individual business has no control over national influences on aggregate demand.

19.2 SCOPE OF ECONOMIC RISK

The sources of risk considered to be embraced within the term “economic risk” are recorded below.

- Fall in demand (a shift in the aggregate demand curve).
- Government policies (including interest rates and trade protectionism).
- Movement in house prices.
- Exchange rates.
- Inflation.

19.3 BENEFITS OF ECONOMIC RISK MANAGEMENT

Economic risk management affords a business benefits as it:

- Improves knowledge of where the government is planning public spending.
- Provides an understanding of the impact of inflation and interest rates on demand.

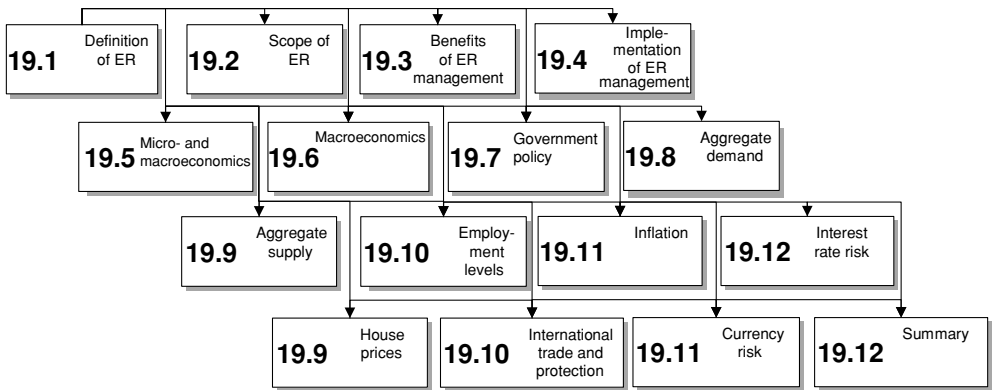


Figure 19.1 Structure of Chapter 19

- Provides an understanding of how the short-term behaviour of the GDP (gross domestic product) impacts employment, prices and standards of living.
- Promotes more rigorous market research when entering new markets in both domestic and international markets.

19.4 IMPLEMENTATION OF ECONOMIC RISK MANAGEMENT

The development of a sound system of economic risk management will depend on a number of issues such as:

- An understanding of the drivers and consequences of inflation.
- An understanding of the impact of changes in exchange rates on the demand curve.
- Tracking planned government spending.
- Understanding government fiscal and monetary policies.
- The taxation regime.

19.5 MICROECONOMICS AND MACROECONOMICS

To make sense of economic risk for businesses it is worth examining the difference between micro- and macroeconomics. Microeconomics is described by economists as being driven by households whose members have needs for goods and services. These members have resources – incomes, assets, time and energy – with which to satisfy their wants. However, the limitations of their resources forces them to make choices which they do through markets where they are offered many ways to spend their money, their energy and their time. The trigger to which households respond is market prices. Given a set of prices, each household will make a given set of choices. In doing so, in aggregate they affect those prices. The prices signal to businesses what goods they may profitably provide. Given available technology and the known costs of production, businesses choose among (1) the products they might produce, (2) the ways of producing them and (3) the various quantities (and qualities) they can supply. In doing so,

they affect prices. Businesses demand factors of production¹ in quantities that depend on their output decisions, which in turn depend on consumers' demands. These derived demands² for factors affect the prices of land, labour and capital goods. The owners of factors respond to factor prices by deciding how much of their services to offer and where to offer them. These choices determine factor supplies. Payments by businesses to factor owners provide factor incomes. The recipients of these incomes are members of households (who have needs and desires for goods and services³), and now we have come full circle. This paragraph describes a circular flow of income. Money passes from households to businesses in return for goods and services produced by businesses and money passes from businesses to members of households in return for factor services provided by those members of households. Microeconomics studies individual parts of this flow in infinitesimal detail.

The basic problem of macroeconomics is the determination of total employment, output and price level. Macroeconomics studies the total amount of deployment of each of the major factors of production (with special attention to the total amount of labour employed); the total volume of output produced and income earned in the whole economy; the average level of prices in all product markets (called the price level); and the growth of the economy's total output, both actual and potential.

19.6 MACROECONOMICS

The three most important macroeconomic concepts are output, income and expenditure. They are the main indicators of a nation's economic performance. Firms produce the goods and services, which combined are the nation's output (O). Production requires factors of production whose owners are paid for services provided and it thus generates income (Y). When the nation's output is sold, people spend money to purchase it, the value of expenditure (E) being the amount required to purchase the nation's output. They should all give the same total as they all measure the flow of income produced in the economy. Hence $Y \equiv O \equiv E$. Figure 19.2 illustrates the circular flow of income in a simplified model of the economy. The value of the output is equal to the incomes that it generates, that is, wages, rent, profit and interest. If it is assumed that all income is spent, expenditure will equal income and in turn, by definition, equal output.

19.6.1 GDP

The most important empirical measure of these variables (output, income and expenditure) is called the gross domestic product (GDP). This is the value of total output actually produced in the whole economy over some period and commonly a year. A loose term for GDP is national income. GDP is an important measure of the standard of living in the UK. Past short-term

¹ The factors of production are the inputs to the production process: land, which is all natural resources (including, for example, forestation and minerals from below the earth); labour, which is the workforce; capital goods, which are any man-made resources used in the production of goods and services (from the spade to the modern assembly plant); entrepreneurs, individuals who seek out profitable opportunities for production (land, labour and capital goods) and take risks in attempting to exploit these.

² Businesses require land, labour, raw materials, machines and other inputs to produce the goods and services that they sell. The demand for any input therefore depends on the existence of a demand for the goods that it helps to make. Economists describe this demand as derived demand.

³ Goods are tangible such as cars and televisions. Services are intangible such as education and haircuts. Goods and services combined are labelled as commodities. The total output of all commodities in one country over some period, usually taken as a year, is called the gross national product.

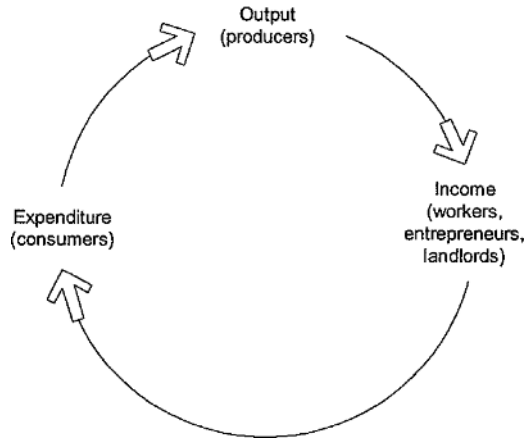


Figure 19.2 The circular flow of income in the UK economy

behaviour of GDP has been characterised by oscillations, which have given rise to some serious problems. Rapidly rising GDP often causes labour shortages, a balance of payment deficit and severe inflation. Declining GDP often causes bouts of heavy unemployment, static or falling living standards and isolated pockets of severe poverty (reported to exist in the UK as recently as the 1980s). Nominal (or money) GDP is GDP measured in terms of prices operating in the year in which the output is produced. It is sometimes referred to as GDP at current prices and is a measure that has not been adjusted for inflation. Nominal GDP may give a misleading impression of how a country is performing. This is because the value of nominal GDP may rise not because more goods and services are being produced but merely because prices have risen. For example, if 200 million goods are produced at an average price of £2, GDP will be £400 million. If in the next year the same output of 200 million goods is produced but the average price rises to £3, nominal GDP will rise to £600 million. So to get a truer picture of what is happening to output, economists convert nominal into real GDP. They do this by measuring GDP at constant prices by adopting the prices operating in a selected base year. For example, in 2003 a country's GDP is £900 billion and the price index is 100. In the following year the nominal GDP rises to £973 billion and the price index is 105. To calculate the real GDP the following expression is used:

$$\text{real GDP} = \text{nominal GDP} \times \frac{\text{price index in base year}}{\text{price index in current year}}$$

So for 2004:

$$\text{real GDP} = 973\text{bn} \times \frac{100}{105} = 926.67 \text{ bn}$$

19.7 GOVERNMENT POLICY

As described in the definition of economic risk, macroeconomics is influenced by government policy. The main government macroeconomic policy objectives are: low unemployment, low and stable inflation, a satisfactory balance of payments position, avoidance of excessive exchange rate fluctuations and steady economic growth. In striving to manage the economy,

successive UK Governments have been acutely aware of the problems that can arise when, say, the rate of inflation is high, the economy slips towards recession leading to an excessive rate of unemployment or there is a surge of imported goods. Such problems have a consequence for the economy as a whole. In managing these problems though, the dilemma governments face is that not all of their stated objectives can be achieved simultaneously.

19.7.1 Fiscal policy

Fiscal policy is the name given to government policies, which set to influence government revenue (taxation) and/or government expenditure, in the pursuit of particular policy objectives. It is used by governments to influence the level of aggregate demand and supply in the economy. In simple terms it can be described as changes in the income or expenditure sides of government accounts. The UK Government has been responsible for between 40 and 50% of national expenditure over the past 30 years. The main areas of public spending are the National Health Service, defence, education and transportation (primarily roads). In addition, the government is responsible for transferring large sums of money around the economy through its spending on social security and National Insurance benefits. Income is mainly derived through Inland Revenue (of which income tax and corporation tax combined contribute more than 90%) and Customs and Excise (of which Value Added Tax and fuel duties combined contribute more than 65%). The government has to make decisions about how much to spend, tax and borrow. It also has to decide on the composition of its spending and taxation. Should it spend more on defence than education and so on. Should vehicle excise duties be cut and fuel duties be increased? These decisions about taxation, borrowing and spending are called the *fiscal policy* of the government. Major changes in fiscal policy in the UK are normally announced at the time of the Budget, when the spending and taxation forecast for the following year is delivered. The government financial year commences on 6 April and ends on 5 April the following year. The Budget traditionally takes place before the end of the financial year on 5 April.

19.7.2 Monetary policy

When the government wishes to stimulate the economy, one of the tools at its disposal is to increase the money supply.⁴ When the government wishes to dampen down the economy it is likely to seek to reduce the money supply. Rates of interest tend to move upwards or downwards in line with the monthly rate of interest set by the Bank of England. Since 1997 the Bank of England was given independence by the government and is now responsible for setting the interest rate each month. This is done at a monthly meeting of the nine members of the Monetary Policy Committee (MPC) at the Bank of England. The MPC takes into account the government's "inflation target" and the future inflation projections when deciding on the rate of interest. Any lowering of interest rates at a given level of prices will lead to a rise in aggregate demand. This is because a fall in interest rates leads to a rise in spending on consumer durables and an increase in investment.

The money supply, the rate of interest, the Public Sector Borrowing Requirement (PSBR) and the exchange rate are all interlinked. If the government fixes a value for one, it cannot fix

⁴ Monetary policy is the attempt by government or the central bank of an economy to manipulate the money supply, the supply of credit, interest rates and other monetary variables to achieve the fulfilment of policy goals. Narrow money is defined as the combination of currency in the form of notes and coin together with balances that are available for use in normal transactions. Broad money is money not immediately accessible such as balances at banks and building societies that stand in the name of individuals.

a value for the others. Hence a government may choose not to control the money supply in order to control other variables such as the rate of interest.

19.7.3 Competing theories

There are two opposing schools of thought on economic policy. Namely whether the economy is best managed through the application of *demand-side* or *supply-side* policies. The traditionalists believe that governments must intervene in the affairs of the economy to achieve their objectives, by the management of aggregate demand through the application of both fiscal and monetary policies (which are discussed below). This intervention they consider is crucial to achieving full employment, low inflation, balance of payments stability and economic growth. Other economists have taken a different view. Their belief is that macroeconomic objectives can be best met when the economy is allowed to function naturally, with little interference from government. In other words the forces of *aggregate demand* and *aggregate supply* combined will allow the market economy to operate in the most effective way to allow governments to meet their objectives for the macroeconomy. Supply-side policies, which focus explicitly on managing the total amount of output in the economy, are combined with policies which manage aggregate demand, with the aim of providing the most appropriate ways of allowing governments to meet their macroeconomic objectives.

19.8 AGGREGATE DEMAND

Aggregate demand is the term used by economists to denote spending on goods and services produced in an economy. It consists of four elements: consumer spending (C), investment expenditure (I), government spending (G) and net expenditure on exports and imports ($X - M$) and is usually represented by means of the following expression: $AD = C + I + G + (X - M)$. Figure 19.3 shows a typical aggregate demand curve, which is downward sloping. Real GDP is shown on the horizontal axis and the average price level is on the vertical axis. Any point

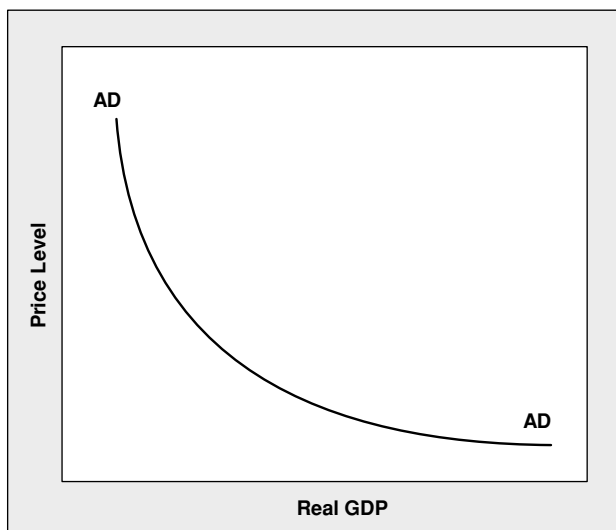


Figure 19.3 An aggregate demand (AD) curve

on the AD curve therefore shows total real GDP required in an economy at a specific overall price level. As the curve relates to real GDP it takes into account inflation.

There are three main reasons why the AD curve is assumed to be downward sloping, from left to right. Economists believe aggregate demand is increased when: (1) the domestic market switches from imports to domestic commodities as a result of UK prices appearing more attractive (an effect which can be negated by adverse exchange rates); (2) UK prices fall and domestic customers with bank or building society savings or stocks and shares use their savings to buy an increased quantity of goods and services; and (3) prices fall and customers make purchases in the belief that it is advantageous to buy at the current low prices, anticipating future increases will take place.

19.8.1 Using aggregate demand curves

There are some circumstances that lead to movements along the AD curve as discussed above; however, if the basic circumstances underlying those causal factors alter then there will be shifts of the AD curve. For example, if the world economy moves into a boom there will be a boost to UK exports at any given price and the AD curve may be said to shift to the right. However, in the instance where a tax on wealth holdings is imposed, so that stocks of monetary assets fall dramatically, then the AD curve may shift to the left. If, at any given price level, customer's price expectations alter, then the AD curve will shift, see Figure 19.4.

Businesses must be aware that more dramatic changes in the aggregate demand may arise from changes in the underlying constituents of aggregate demand, that is consumer spending, investment, government spending, exports and imports.

19.8.2 Determinates of consumer spending

Consumer spending is the most important component of aggregate demand. It is the amount of money spent by individuals on goods such as food, clothing, housing, cars, personal computers,

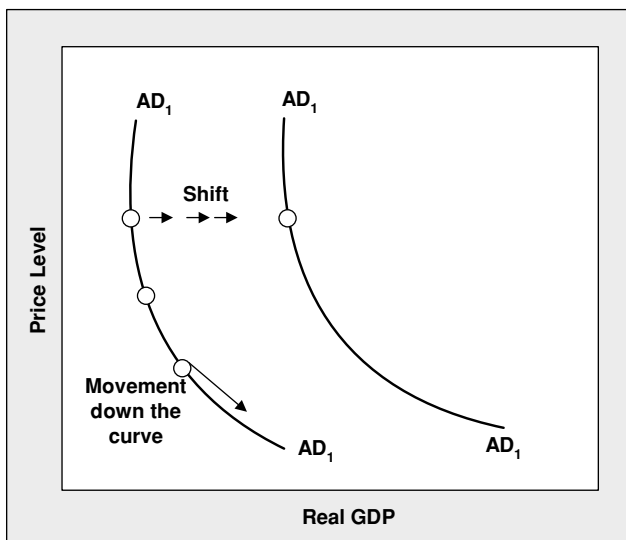


Figure 19.4 Shifts of and movements along the aggregate demand curve

travel, entertainment and other consumerables. A key determinant of consumer spending is the level of disposable income (income after payment of compulsory taxes and National Insurance contributions). For the economy as a whole, therefore, an increase in the level of income will lead to an increase in consumer spending. While in essence true, the statement is an oversimplification as additional spending will reflect the marginal propensity to consume (mpc). That is, the proportion of any increase in income that is spent on consumption. For low income families the mpc is 100% as all additional income is spent on food and clothing and other essential items. At the other end of the spectrum the mpc falls to 50 to 60% where income not spent is saved. However, the key issue is that when income increases so does consumer expenditure and the AD curve shifts to the right. If income tax is raised consumer spending declines and the AD curve shifts to the left. If the interest rate increases mortgage borrowers have to make higher monthly payments, consumer spending falls and again the AD curve shifts to the left.

19.8.3 Determinates of investment expenditure

Investment expenditure can be split into three main categories: public investment, private investment and household investment in houses, flats and other types of accommodation. Analysis of investment in the private sector is complex due to the number of variables which influence decision making; however, a key inducement is a fall in interest rates when projects become more profitable and the AD curve shifts outwards to the right. Another factor which businesses base investment plans on is future expectations such as winning the bid to host the 2012 Olympics. These expectations can be very volatile and investment expenditure may fluctuate markedly accordingly. Public expenditure such as investment in transportation, defence and schools is rather less volatile but still dependent on the state of the economy. For household investment in housing, the rate of interest has a substantial effect on mortgage payments and in turn on disposable income and aggregate demand.

19.8.4 Determinates of government spending

This element of aggregate demand mainly includes current government spending on goods and services in the private sector and spending on employment in central government services. As government spending is relatively constant there is little change in the AD curve but if spending is curtailed and suddenly the “cork is taken out of the bottle” with a sudden resultant boost to expenditure, then there is a shift in the AD curve to the right.

19.8.5 Determinates of net expenditure on exports and imports

There is a multitude of issues which impact on net expenditure on exports and imports and hence there is no simple way to summarise them in a single all encompassing phrase. The strength of our exports is dependent on issues such as the availability of natural resources, the labour market and our transportation system. It is also dependent on whether: our industries are efficient and competitive; our companies produce good quality products and deliver when promised; our companies provide good after-sales; if research and development departments produce a stream of innovations, marketing is well considered; or salesmen can speak the language of the target countries. The level of the exchange rate is also crucial to the business exporter. The import of goods and services do not contribute to aggregate demand directly,

but they do indirectly by diminishing demand overall. If imports penetrate the home market to a significant degree, then there is less scope for the domestic producers to capture the home market. Beyond these issues is the overall level of demand in the economy. When GDP rises, there is an automatic increase in imports (as a result of an increase in consumer demand). This is particularly the case for those imports that are needed for manufacturing. If a manufacturer of light aircraft needs steel, copper and rubber, all of which are imported, then an increase in the production of aircraft will require additional imports. In addition an increase in living standards will also be accompanied by consumer demand for commodities.

19.9 AGGREGATE SUPPLY

Aggregate supply is the total output of the economy. In the UK economy this would be anything produced by the factors of production (land, labour and capital goods). Aggregate supply is simply the total output of the economy at a given price level at a given point in time. The aggregate supply curve shows the relationship between the total quantity supplied in an economy at a price level. The shape of the curve can be rationalised as follows: at low prices businesses collectively do not consider that it is worth producing goods and services as they do not expect to be able to sell them or break even. As the overall price level increases, more and more businesses consider that it is worthwhile to start producing or produce more and so supply expands. When the economy starts to run at capacity in terms of the available land, labour, capital goods and entrepreneurship, the AS curve starts to appear vertical (see Figure 19.5). In the short term, changes will be along the curve. If there is spare capacity in the economy that businesses respond to, an increase in demand will have a much bigger effect on output than it will have on prices. Looking at Figure 19.6, this is shown by the movement along the AS curve from A to B. Beyond B, though businesses are reaching their full capacity and costs are rising which results in the AS curve being steeper. So as illustrated by movement

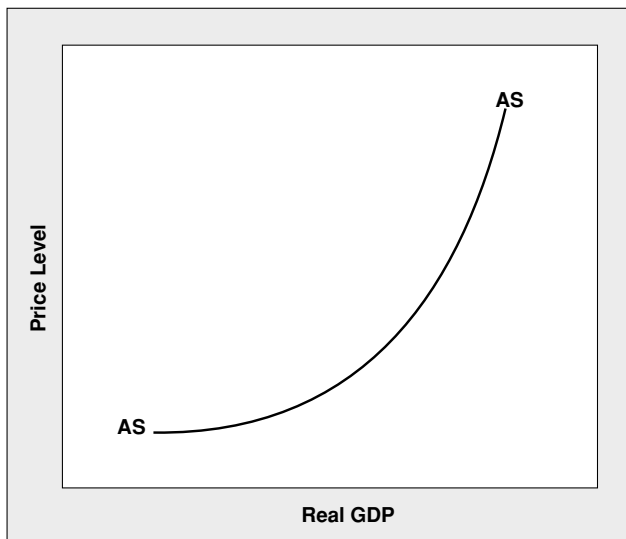


Figure 19.5 An aggregate supply (AS) curve

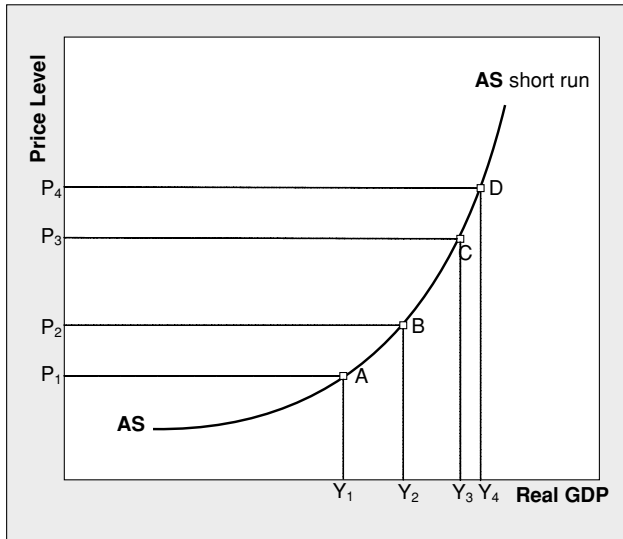


Figure 19.6 Short run aggregate supply (AS) curve

along the curve from C to D, small increases in output will have a larger impact on prices. From the long-term perspective, there are many factors which may shift the whole of the AS curve. Some examples are:

- An increase in the capital stock due to a reduction in interest rates;
- An improvement in the expectations of business executives;
- Continuing technological change;
- Increased investment in education and training;
- A reduction in unemployment benefits; and
- Schemes to improve the geographical mobility of workers.

19.10 EMPLOYMENT LEVELS

The social and political importance of the figure that expresses the unemployment⁵ rate is enormous. It is widely reported in newspapers and on television. The government is blamed when it is high and takes credit when it is low. It is often a major issue in elections and few macroeconomic policies are formed without consideration of their effect on it. Unemployment, the number of people out of work, is measured at a point in time but is in a constant state of flux. Young people leave school, college or university seeking work. Former workers who have taken time out of the workforce, for instance to travel or bring up young children, seek to return to work. Workers who have lost their jobs, either because they have resigned or because they have been made redundant, search for new jobs. Equally many hundreds of thousands of workers leave their jobs as a result of retirement, childbirth, disabilities or ill health. Long-term unemployment is generally considered to be a great social evil. Apart from

⁵ The term “unemployment” used here means involuntary unemployment where a person is willing to accept a job at the going rate but no such job can be found.

the loss of income, studies suggest that the unemployed suffer from a wide range of social problems including above average incidence of stress, marital breakdown, suicide, physical illness and mental instability and they have higher death rates. High unemployment has a negative impact on the domestic market for businesses. Those out of work rely on the welfare state resulting in a structural deterioration in public finances. Income from taxation falls and hence less government money is available for expenditure on areas such as roads, schools and defence. In addition, those in work become nervous and begin to spend less. Government action attempts to regulate unemployment with mixed results. Between 1979 and 1986 it can be argued that the government kept aggregate demand too low through a combination of high interest rates (restrictive monetary policy) and tight control of government borrowing (restrictive fiscal policy). Policy makers are concerned about short-term fluctuations in *national income* because of their consequences for unemployment and lost output. National income is a loose term for the nation's total output known as its GDP. Employment levels are important to businesses in terms of the availability, cost and ability (education and training levels) of potential employees. As explained above, employment levels are also important to businesses in terms of government spending.

Government actions while designed to protect a county's interests can sometimes have adverse side effects. In the United States the visa regime and strict immigration rules have generated concern among employers. Bill Gates stated that the decline in the influx of foreign computer students was so severe it was threatening to undermine America's position in the global software industry (Larsen and Gapper 2005). The US's status as "the IQ magnet of the world" was thought to be in jeopardy. At the World Economic Forum in Davos early in 2005, Mr Gates pointed to the sharp difference between emerging markets such as India and China, where about 40% of students take engineering degrees, and the US, where the proportion is about 4%.

19.11 INFLATION

For the purposes of this examination of the economy, *inflation* is defined as a sustained general rise in prices. The opposite of inflation – *deflation* – strictly speaking is a fall in the *price level*. However, it can also be used to describe a slowdown in the rate of growth of output of the economy. This slowdown or recession is often associated with a fall in the rate of inflation. A general rise in prices may be quite moderate. *Creeping inflation* would describe a situation where prices rose a few percent on average each year. *Hyperinflation* on the other hand describes a situation where inflation levels are very high. The inflation rate is the change in average prices in an economy over a given period of time. The price level in an economy is measured in the form of an *index*. So if the price index were 100 today and 110 in one year's time, then the rate of inflation would be 10%. In the UK the most widely used measure of the price level is the Retail Price Index. The price index is calculated by recording the price of a representative range of goods and services. Individual prices are weighted before the final index can be calculated, as prices for one good are more important than others.

Inflation is generally considered to be a problem. Some economists, mainly monetarists have claimed that inflation creates unemployment and lowers growth. Inflation increases costs of production and creates uncertainty. This lowers the profitability of investment and makes businesses less likely to take risk associated with any investment project. Lower investment results in less long-term employment and long-term growth. Monetarists argue that inflation is caused by excessive increases in the money supply.

Some Keynesians⁶ believe that excess demand in the economy is the principal cause of inflation – the *demand/pull* theory of inflation. Other Keynesians argue that inflation is primarily *cost/push* in nature. The demand/pull theory of inflation says that inflation will result if there is too much money chasing too few goods in the economy. The second Keynesian theory of inflation is the cost/push theory of inflation, which states that inflation is caused by increases in cost of production. There are four major sources of increased costs: wages and salaries, an increase in the cost of imported goods, increases in prices (to boost profits) and an increase in taxes which increases prices. Put another way monetarists argue that inflation can only be controlled through monetary policy. Keynesians argue that monetary policy is ineffective. Inflation is best controlled through policies such as fiscal policy and incomes policy.

An effect of unanticipated inflations is to redistribute wealth from lenders to borrowers. To see how this happens, suppose that X lends to Y £100 at 5% interest for one year. If the price level rises by 10% over the year, X will actually earn a negative rate of interest on the loan. The £105 X gets back from Y will buy fewer goods than the £100 X originally parted with. X's loss, however, is Y's gain. Y did not even have to use the £100 in any productive business enterprise to show a gain. All he needed to do was to buy and hold the goods whose price rose merely by the average rate of inflation. At the end of the year Y can sell the goods for £100, pay back the £100 he borrowed plus £5 interest, and show a gain of £5 for having done nothing more than hold goods instead of money. This type of inflationary redistribution occurs not just on borrowing and lending contracts, but on any form of contract that is stated in terms of monetary units.

19.12 INTEREST RATE RISK

While any single business has no control over the setting of interest rates, businesses can predict how consumers are going to react as trends are well established and can respond accordingly. This is now more important than in the past as the UK Government is increasingly using interest rates to control the demand for money and expenditure. The risk for businesses whose income is quickly and significantly affected by changes in interest rates is not monitoring and responding to projected and actual changes in the rates. Changes in the interest rate affect business and consumer behaviour in a number of ways.

- *Exchange rate*: Increasing interest rates in the UK tends to make holding sterling deposits in the UK more attractive. An increase in demand for sterling is likely to raise the exchange rate for sterling. Raising the exchange rate will make exports more expensive abroad and imports cheaper in the UK. Lowering interest rates will have the opposite effect, reducing the exchange rate for sterling, thereby making exports cheaper abroad and dearer in the UK.
- *Discretionary expenditure*: For most homeowners their mortgage is the most important item of expenditure. To avoid losing their home, most maintain their mortgage repayments. The majority of homeowners with mortgages are on variable rate mortgages so that if interest rates rise they must pay back more per month, leaving less disposable income. Likewise if interest rates fall, there will be increased income left in the family budget for expenditure on other things.

⁶ Keynesian economics are based on the work of John Maynard Keynes, who is referred to as the creator of modern macroeconomics. His ideas, for which he is most famous, are recorded in his very popular book called *The General Theory of Employment, Interest and Money*.

- *Savings*: Higher interest rates encourage saving, since the reward for saving and therefore postponing consumption has increased. Lower interest rates discourage saving by making spending for current consumption relatively more attractive.
- *Borrowing*: Higher interest rates discourage borrowing as it has now become more expensive, while lower interest rates encourage borrowing as it has now become cheaper. Borrowing on credit has played an important role in the growth of consumer spending.

19.13 HOUSE PRICES

Expenditure on residential structures (as economists like to label them, but housing to you and me) is a significant part of gross private investment. House sales are often treated as an economic barometer. As these expenditures are both large and variable they exert a major impact on the economy. Influences on residential construction are both non-economic and economic. Non-economic influences include changes in demography, changes in the age profile of the population and increases in population. Economic influences include increases in family earnings, changes in tax incentives, stamp duty, the number of reposessions and changes in the interest rates. Interest payments are a large part of total mortgage payments. At an interest rate of 8%, about half of the money paid on a 20-year mortgage is interest. Only half is for repayment of the principal. As interest payments are such a large part of the total payments on a mortgage, small changes in interest rates cause a relatively large change in the annual payments. For instance a rise in the rate of interest from 8 to 10% increases the monthly payments on a 20-year mortgage by nearly 15.4%. Changes in interest rates can therefore have a large effect on the demand for new housing. Hence a fall in the rate of interest will lead to a temporary spurt of investment in new housing and a rise will reduce the demand for new housing.

19.14 INTERNATIONAL TRADE AND PROTECTION

19.14.1 Trade

Businesses need to have an understanding of the mechanisms of international trade and protectionism imposed by governments, to understand the risks and opportunities associated with the production of goods for export. There needs to be an awareness of the benefits and disadvantages of protectionism so that lobbying of government is on an informed basis. Obviously production and distribution not only occur in the context of domestic markets but are also influenced by trading relations with foreign countries. While discussion on international trade frequently refers to trade between nations, what should not be overlooked is that in free-market economies most of the decisions determining the size, content and direction of foreign trade are taken by households and businesses. Businesses may see an opportunity of selling goods abroad and arrange to have these goods exported; other businesses may see an opportunity of selling foreign goods in the home market and arrange to have these goods imported. If households, either at home or abroad, find such goods attractive and purchase them, the ventures will be successful. If they do not the goods will remain unsold and will no longer be imported or exported. Hence in free-market economies foreign trade is determined just as domestic trade is – mainly by thousands of independent decisions taken by businesses and households and coordinated more or less effectively by the price system. Overlaid over the top of this trade

at household and business level is the frequent desire of governments to try to influence the process. They may provide subsidies for exports seeking to encourage foreign sales of domestically produced goods by making their prices more attractive; they may put tariffs on imports, seeking to discourage domestic sales of foreign produced goods, by making their prices less attractive.

19.14.2 Methods of protectionism

There are basically three means by which a country can reduce its imports of some goods: (1) it may place a tax on imported commodities, called a tariff; (2) it may impose an import quota that limits the quantity of the commodity that may be shipped into the country in a given period; and (3) it may adopt domestic policies that reduce its demand for the imported commodity. For example, it may require potential importers to acquire a special licence, or it may restrict the ability of its citizens to use their funds to purchase the foreign exchange needed to pay for the commodity. Although each means of restricting trade has different effects, they all achieve the same reduction in the quantity of imports.

19.14.3 Trade policy

A government may choose to impose or tighten currency controls. These are controls on the purchase of foreign currency by domestic citizens and firms. In the late 1960s for instance the UK Government limited the amount of currency that could be taken abroad on holiday. Governments could equally restrict finance for investment abroad or even for imports. The government abolished exchange controls in 1979 and today the UK Government is unable to impose currency controls because of its membership of the European Union.

19.14.4 Balance of trade

The *balance of trade* is the difference between the value of exports and imports in a given year. An excess of exports over imports is referred to as a *surplus* and an excess of imports over exports as a *deficit*. A situation where exports are just equal in value to imports is a situation of *balanced trade*. Any balance of trade, surplus, or deficit requires financial flows between the countries involved. This is not to be confused with the balance of payments, which take account of all transactions between one country and another in terms of receipts and payments. The three main components of the balance of payments are the current account (covering investment, income, exports and imports), the capital account and the balancing account (which records changes in revenue).

Post-World War II governments have rarely balanced their budgets (i.e. they have rarely planned to match their expenditure with their receipts). In most years they have run *budget deficits*, spending more than they receive. As a result, in most years the UK Government has had to borrow money. In the UK the borrowing of the public sector (central government, local government and other state bodies such as nationalised industries) over a period of time is called the *public sector borrowing requirement* (PSBR). In two periods, between 1969–70 and 1988–90, the UK Government received more revenue than it spent. The normal budget deficit was turned into a budget surplus. The UK budget surplus is called the *public sector debt repayment* (PDSR). The debt incurred from overspending is called the National Debt.

19.15 CURRENCY RISK

Understanding exactly what assets and liabilities of a company are exposed to foreign exchange risk is crucial to exposure management (Perry 1997). There is always a risk that the expected cash flows from overseas investments will be adversely affected by fluctuations in the exchange rates. A fall in the value of the local currency may completely alter the feasibility of an investment project. It is important, therefore, to assess the level of exchange rate risk and to consider ways in which this risk can be minimised or overcome prior to commencing the project. Perry (1997) describes two types of foreign exchange risk:

- “*accounting*” or “*translation*” exposure arising from the need to translate the balance sheet of a multinational’s subsidiary into home currency terms;
- “*economic exposure*” arising from a company’s future cash flows rather than merely its “snapshot” accounting exposure.

Economic exposure (previously known as transaction exposure) arises from both the direct effect of having to pay or receive currency at a future date and currency fluctuations. Currency fluctuations may cause changes in the relative prices of goods across countries, which can affect a company’s international competitiveness, altering its sales, profits and ultimately its value. Giddy and Dufey (1992) state that the concept of *accounting exposure* arises from the need to translate accounts that are denominated in foreign currencies into the home currency of the reporting entity. Most commonly the problem arises when an enterprise has foreign affiliates keeping books in the respective local currency. For the purposes of consolidation these accounts must somehow be *translated* into the reporting currency of the parent company. Perry provides an example of *translation exposure* where, for instance, a UK company has a translation exposure in US dollars and it decides to sell dollars forward. If the dollar subsequently rises and it never actually receives the dollars from the subsidiary, it is forced to buy expensive dollars in the spot market without an offsetting transaction. This could lead to insolvency, or at the very least a cash flow problem.

19.15.1 Risk mitigation by hedging

Where a business is engaged in overseas transactions involving large sums, an adverse movement in exchange rates can be catastrophic and so it will usually adopt some form of “hedging” to minimise the risk. There are various ways in which hedging can be carried out and the more simpler of these are described below.

Netting

Netting is a simple technique which can be used where a business both imports and exports goods to the same country. If such a business has an amount owed and an amount owing to be settled at the same date, it is possible to offset one amount against the other. For example, a UK business which buys goods from and sells goods to Germany may find it owes euros 5m and is owed euros 6m and the settlement for both amounts occur in one month’s time. The amount owed (euros 5m) can be used to pay part of the amount owing (euros 6m). Although in this case the major portion of the exchange rate risk has been dealt with, euros 1m still remain. This will have to be dealt with/hedged by using some other technique. Netting is more readily undertaken by businesses, which have operating divisions in different countries, which

trade with each other. Offsetting of the interdivisional debts will often be done through the headquarters.

Leading and lagging

Another technique is leading and lagging. Assume a scenario where a UK business is owed \$1 million by a US business which is due for settlement in three months' time. However, it is expected that the US\$ will fall in value against the £ sterling during this period. In such a situation, the UK business may try to obtain earlier payment so as to avoid this adverse movement in the exchange rates. To achieve this some form of financial incentive will probably have to be offered to the US business as part of a mitigation action. This reduction of the settlement period is referred to as "leading".

Forward market hedge

A forward market hedge involves a business entering into a contract to buy or sell a fixed amount of currency at an agreed future date and at an agreed rate. The actual exchange or delivery takes place at a specified time in the future. While the amount of the transaction, the value date, the payments procedure and the exchange rate are all determined in advance, no exchange of money takes place until the actual settlement date. This commitment to exchange currencies at a previously agreed exchange rate is usually referred to as a *forward contract*. The contract is usually offered through the foreign exchange department of a bank. The pricing of a forward contract is a wholly arithmetical process, involving no assumptions or guesswork as to the likely exchange rate movements. The seller of the contract simply adjusts the current spot rate of exchange to allow for the difference in interest rates between the two currencies covered by the contract (Holliwel 1998). "Broken dates" are contracts where the expiry is fixed for other than complete months. The difference between the forward and the spot exchange rate is called the "differential". If the rate quoted for the forward contract is better for the client of the bank than the spot rate in the market, then it is at a "premium". If the forward rate is worse for the client of the bank than the spot rate then it is at a "discount".

To illustrate this technique, assume a scenario where a UK business is owed \$1 million in two months' time for goods or services supplied to a US business. The UK business may hedge against the prospect of an adverse movement in exchange rates (i.e. a rise in the US\$ against £ sterling) by agreeing to sell US\$1 million in two months' time at an agreed rate of exchange. By doing this, the UK business is now certain about the amount in £ sterling, which is receivable, as the dollars to be received in two months' time can be sold at the agreed exchange rate.

The bank offering the forward enters into a contract with the UK business to buy the US\$1 million in two months' time and pay the business in sterling. For the purpose of this illustration, the bank borrows US\$1 million which it immediately sells at spot rate in the market for sterling, placing the proceeds on deposit to earn interest in sterling for the next two months. At expiry of the forward contract in two months the bank receives from the business the US\$1 million it has agreed to buy under the contract and uses that money to repay the US\$1 million it has borrowed. The bank pays the business the sterling it had received from selling the US\$1 million at spot two months earlier, which has been held in the interest earning deposit account.

If the bank knows that it will earn a higher rate of interest on the sterling deposit than it will have to pay on the US dollar borrowing then the bank would give the client the benefit of

the difference by buying the US\$1 million at a “premium” to the spot rate, that is the forward contract rate at which the bank will buy the US dollars is better for the business than the spot rate in the market on the day the forward contract is agreed. If the rate of interest the bank will earn on the sterling deposit is less than the rate of interest it will pay on the US dollar borrowing then the forward rate the bank quotes will be worse for the business than the spot rate in the market on the day the forward contract is agreed, that is the forward rate will be at a “discount” to the spot rate.

In practice the bank is unlikely to actually borrow and sell currencies, but the above illustrates the principles on which the calculations for a forward contract are based. However, there is still a risk that US business will not pay the amount owing on the due date. The problem with this technique of course is that a business will not be able to benefit from any beneficial movement in exchange rates, as the future exchange rate is fixed.

Fuel market hedge

A fuel market hedge involves a business entering into a contract to buy or sell a fixed amount of fuel at an agreed future date and at an agreed rate. Fuel prices are critical to commercial airlines. This is explained by the article headed “Ryanair Profit Grounded by Spiralling Fuel Prices” which appeared in the *Evening Standard* in November 2004, describing the potential impact of rising fuel prices on budget airline Ryanair. The *Standard* stated: “Ryanair will fail to make a profit this winter as its aircraft fuel bill soars by as much as 50% because it has not taken action against the spiralling oil price. With the price of oil at all-time highs above \$50 a barrel, the Irish budget airline admitted today it has gone into the second half of its financial year – October to March – completely unhedged and in a position to do nothing other than pay through the nose for its fuel. Most airlines attempt to hedge their future bills by taking out forward contracts, sometimes over a number of years. But Ryanair boss Michael O’Leary said he decided not to buy fuel at a forward price of \$40 a barrel 12 months ago because he thought it was too high. As a result, the Irish budget airline’s fuel bill will shoot up by €55 million (£38.3 million), half as much again than it would normally have expected to pay [...] (ES 2004).” A lack of fuel hedging has also left struggling American Airlines exposed. As reported by Daniel (2005), the airline had fuel hedges for just 4% of its fuel requirements for 2005.

Currency futures

Outside of the interbank forward market, the best-developed market for hedging exchange rate risk is the *currency futures* market. In principle, currency futures are similar to foreign exchange forwards in that they are contracts for delivery of a certain amount of foreign currency at some future date and at a known price. In practice, they differ from forward contracts in important ways. A significant difference between *forwards* and *futures* is standardisation. Forwards are for any amount, as long as it is large enough to be of interest to the dealer, whereas futures are for standard amounts, each contract being far smaller than the average forward transaction. Futures are also standardised in terms of delivery date. The normal currency futures delivery dates are March, June, September and December, while forwards are private agreements that can specify any delivery date that the parties choose. Both of these features allow the futures contract to be tradable. Another difference is that forwards are traded by phone and telex and are completely independent of location or time. Futures on the other hand are traded in

organised exchanges such as the LIFFE (London International Financial Futures Exchange) in London, SIMEX in Singapore and the IMM in Chicago. The most important feature of futures contracts is the time pattern of the cash flows between the parties to the transaction. With futures cash changes hands every day during the life of the contract, or at least every day that has seen a change in the price of the contract. This daily cash compensation feature largely eliminates default risk.

Currency hedging

Currency hedging eliminates the risk of foreign exchange movements adversely affecting profits. The principal financial instruments currently used by companies for hedging are currency forwards, swaps and options.

- A currency forward is simply an agreement to buy or sell foreign exchange at an agreed rate and at a certain time in the future.
- A currency swap can be seen as a series of forward contracts.
- Currency options on the other hand give a company the right, rather than the obligation, to buy or sell foreign exchange at a certain time in the future at an agreed price, thereby allowing the company to lock in a fixed amount of foreign currency to buy or sell, while allowing it to benefit from any favourable exchange rate movements.

The risks associated with hedging are that strategies are ineffective or at worst calamitous. Hedging is costly not only in terms of transaction costs, spreads and premia but also in terms of management time and effort. Highly trained personnel are required.

Money market risk

Money markets are the markets in which money is borrowed and lent in large quantities for relatively short periods (often very short). Effectively they are a market in deposits and advances. However, they are also a market in various forms of short-term security that are almost the equivalent of money. In the money markets banks need to adjust the interest rates they offer and charge until they have the right balance between those that are prepared to lend to them and those who want to borrow. Building societies need to adjust the rates they pay to savers and charge to borrowers so that they keep a balance between the money coming in and the amount going out as mortgage loans. However, the private sector commercial banks on occasion need to borrow from the government via the Bank of England or may be put in a position where they need to do so. In other words the Bank of England as the country's central bank is the lender of last resort to the banking system. The level at which it is prepared to lend and the terms can be used to influence the level of interest rates across the economy.

The purchasing power parity theory of exchange rates

There is an argument that disputes the need for hedging. PPP (*purchasing power parity*) claims that exchange rate changes are offset by price level changes. If purchasing power parity exists, then a given amount of currency in one country, converted into another currency at the current market rate, will buy the same bundle of goods in both countries. For instance, if £1 = \$2, and consumers only buy jeans, then purchasing power parity will exist if a £20 pair of jeans cost \$40 in the USA. It will not exist if a pair of jeans priced at £20 in the UK is priced at

\$50 or \$30 in the USA. If there are only two goods in the economy, food and clothing, then purchasing power parity will exist if an identical bundle of food and clothes costs £100 when it costs \$200 in the USA, or £500 when it costs \$1000 in the USA.

The *purchasing power parity* (PPP) theory states that exchange rates in the long term change in line with different inflation rates between economies. To understand why exchange rates might change in line with inflation rates, assume that the balance of payments of the UK is in equilibrium with exports equal to imports and capital outflows equal to capital inflows, but is suffering from a 5% inflation rate (i.e. the prices of goods are rising on average by 5% per year). Assume also that there is no inflation in the rest of the world. At the end of one year, the average price of UK exports will be 5% higher than at the beginning. On the other hand, imports will be 5% cheaper than domestically produced goods. At the end of the second year, the gap will be even wider.

Starting from a PPP rate of $\$2 = £1$, this change in relative prices between the UK and the rest of the world will affect the volume of exports and imports. UK exports will become steadily less price competitive on world markets. Hence sales of UK exports will fall. Imports into the UK on the other hand will become steadily more price competitive and their sales in the UK will rise. The balance of payments on the current account will move into the red.

A fall in the volume of UK exports is likely to lead to a fall in the value of exports (this assumes that exports are price elastic – price elasticity is discussed in Chapter 23) and therefore the demand for pounds will fall. A rise in the value of imports will result in a rise in the supply of pounds. A fall in demand and a rise in supply of pounds will result in a fall in its value.

So the purchasing parity power theory argues that in the long run exchange rates will change in line with changes in prices between countries.

An example of a company's approach to foreign exchange is described in Vodafone Group Plc's Annual Report 2004, page 94.

Foreign exchange contracts, interest rate swaps and futures

The Group enters into foreign exchange contracts, interest rate swaps and futures in order to manage its foreign currency and interest rate exposure.

Hedges

The Group's policy is to use derivative instruments to hedge against exposure to movements in interest rates and exchange rates. Changes in the fair value of instruments used for hedging are not recognised in the financial statements until the hedged exposure is itself recognised.

Currency exposures

Taking into account the effect of forward contracts and other derivative instruments, the Group did not have any material financial exposure to foreign exchange gains or losses on monetary assets and monetary liabilities denominated in foreign currencies at 31 March 2004.

19.16 SUMMARY

This chapter has examined elemental macroeconomic theory together with UK Government fiscal and monetary policies aimed at modifying aggregate demand, to achieve its objectives of full employment, low inflation, a stable balance of payments and economic growth. This examination provides the context to business economic risk. It provides a perspective of demand and supply and the modifying influences. Inflation clearly impacts business in terms of the amount paid for goods. Interest rate rises impact the pay rises that have to be made and are particularly felt in the housing industry where significant rises deter the purchase of new homes, and house builders, the building trades and the retail sector, particularly the home improvement

market, suffer. While there are now fewer trade restrictions for those trading overseas, currency risk can be a major risk and risk mitigation is undertaken through hedging practices.

19.17 REFERENCES

- Daniel, C. (2005) "In Hard Times Saving Dollars Makes Sense", interview with Gerard Aspey, Chief Executive of American Airlines, *Financial Times*, Tuesday, 15 March.
- ES (2004) "Ryanair Profit Grounded by Spiralling Fuel Prices", *Evening Standard*, Tuesday, 2 November.
- Giddy, I.H. and Dufey, G. (1992) *The Management of Foreign Exchange Risk*, New York University and University of Michigan. Web address <http://pages.stern.nyu.edu/~igiddy/frisk.htm>.
- Holliwell, J. (1998) *The Financial Risk Manual, a Systematic Guide to Identifying and Managing Financial Risk*, Pearson Education Limited, UK.
- Larsen, P.T. and Gapper, J. (2005) "Visa Rules Hurting US, Warns Gates", *Financial Times*, Monday, 31 January 2005.
- Perry, D. (1997) "Living Life on the Hedge", in *Mastering Management, Your Single-source Guide to Becoming a Master of Management*, Pearson Education Limited.

The previous chapter examined economic risk management as the first of three classes of risk exposure that businesses face relating to what I have termed “business operating environment” within the risk taxonomy proposed in Chapter 11. This chapter examines the second class of the “business operating environment”, called environmental risk. It is often suggested that business behaviour that seeks to be overtly ethical or to give considerable weight to environmental concerns must do so at the expense of profit. However, many firms are now seeing ethical and environmentally responsible behaviour as being in their self-interest. Indeed a business that proactively and positively addresses environmental issues may succeed in both contributing to the national effort to protect the environment and be able to exploit upside risk (opportunities) to enhance business success. The introduction of genuine environmental policies within its marketing activities may enable a business to attract customers, investors and employees, and lower production costs through resource efficiencies, recycling and increased demand. The degree of success of the introduction of environmental policies will be dependent on the appeal to customers, the current or planned activity of competitors, the cost/benefit ratio of implementation and comprehension of the prevailing legislation. Legislation governing environmental protection as advised by the environment agency¹ is very extensive and includes (but is not limited to) the following subject areas: air, chemicals, energy, land, noise and statutory nuisance, pollution, plant protection, radioactive substances, waste and water. The structure of this chapter is illustrated in Figure 20.1. The next chapter examines the third of the external processes, called “legal risk”.

20.1 DEFINITION OF ENVIRONMENTAL RISK

What is environmental risk? Environmental risk for the majority of companies is the deterioration of bottom-line performance from: increased regulation on energy usage, eroded reputation, brand name and market share from an environmental incident, increased operating costs from the effects of global warming, higher fuel costs as natural resources are depleted and loss of market share to more environmentally “savvy” competitors with marketing campaigns which portray social responsibility. Environmental risk for businesses commonly working in regulated industries is reduced profit as a result of exposure to pricing restrictions, operating restrictions, investment obligations or fines as a result of prosecution for breach of the regulations. In the market place, a business may suffer from: the inability to attract customers or the loss of existing customers from the publication of deficiencies in environmental performance; the imposition of increased operating costs arising from compliance with government legislation; or fines imposed by such organisations as the Environment Agency.² For government

¹ <http://www.environment-agency.gov.uk/netregs/legislation>.

² The Environment Agency was set up by the 1995 Environment Act. It is a non-departmental public body, sponsored largely by the Department for Environment, Food and Rural Affairs (Defra) and the National Assembly for Wales (NAW). The industry regulates industrial pollution, land quality, radioactive substances, waste management and water quality.

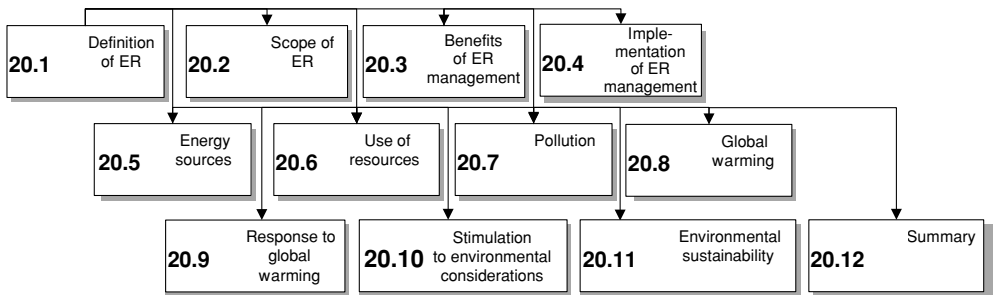


Figure 20.1 Structure of Chapter 20

regulators and environmental activists, environmental risk has a different meaning and relates purely to damage to the environment or the endangering of public health arising from a man-made environmental offence commonly in the form of pollution. The Environment Protection Act 1990 defines the “environment” as consisting of all, or any, of the following media: air, water and land (where the medium of air includes the air within buildings and the air within other natural or man-made structures above or below ground). “Pollution of the environment” is defined as pollution due to the release (into any environmental medium) from any process of substances, which are capable of causing harm to people’s health or any other living organisms supported by the environment. “Harm” for humans means harm to any of the senses or property and harm to living organisms includes interference with the ecological systems of which they form part. “Process” means any activities carried out on premises or by means of mobile plant. Reinhardt (2001) makes the interesting point that environmental risk is “asymmetric”. He explains “asymmetric” by using the example of exchange-rate risk, which has both an upside and a downside, where for instance the value of sterling can either rise or fall against other currencies. He expands on this theme by comparing environmental risks to security risks such as war and kidnapping, where there are no short-term upside risks.

20.2 SCOPE OF ENVIRONMENTAL RISK

The sources of risk considered to be embraced within the term “environmental risk” are very considerable. Environmental risk for businesses may be considered to include, but not limited to:

- Pollution of land, water or air (as defined for instance by the Environmental Protection Act 1990).
- Increased regulation (“red tape”) and higher operational costs.
- Prosecution arising from the lack of observance of rules set by a regulatory body.
- Reputational risk from adverse publicity as a result of pollution events, resulting in a reduced customer base.
- Destruction of facilities or loss of manufacturing as a result of severe weather conditions.
- Loss of oil production resulting in higher energy costs. (The event of hurricanes Katrina and Rita in the United States in 2005 led to a reduction in oil production, which in turn resulted in higher fuel costs across Europe. As reported in *The Times*, London-listed food processing companies warned of higher input costs and stated that over and above the known increase in power bills are the less transparent pressures on packaging and transportation costs (Klinger 2005)).

20.3 BENEFITS OF ENVIRONMENTAL RISK MANAGEMENT

Environmental risk management affords a business benefits as it:

- Encourages examination of business continuity issues stemming from possible climate change events.
- Prompts closer examination of the risks of adverse environmental incidents and response actions should they occur.
- Stimulates marketing initiatives to promote products and brands in the context of the environment, sustainability, renewable energy and preservation of natural resources.
- Affords management the opportunity to focus on revenue generating activities rather than fire-fighting adverse publicity.
- Contributes to management actions which prevent attracting greater regulatory supervision and intrusion.
- Increases competitor advantage where customer-buying preference favours businesses with a better environmental performance.
- Reduces exposure to prosecution.

20.4 IMPLEMENTATION OF ENVIRONMENTAL RISK MANAGEMENT

The development of a sound system of environmental risk management will depend on a number of issues such as:

- The risk management system not overly constraining risk taking, slowing down decision-making processes or limiting the volume of business undertaken.
- The implementers of the risk management framework being distinct from the managers of the individual business units.
- Risks being managed at an appropriate level in the organisation.
- The development of a culture which rewards the disclosure of risks when they exist, rather than encouraging managers to hide them.

20.5 ENERGY SOURCES

Businesses are faced with four key problems, the cost of energy supplies, the reliability of energy supplies, dwindling natural resources and the control of emissions. Traditional sources of supply are running short across the world. The International Energy Agency says the world will need almost 60% more energy in 2030 than in 2002, and fossil fuels will still meet most of its needs.³ We depend on oil for 90% of our transport, pharmaceutical and chemical needs. Oil forms the foundation of our current way of life. Some industry experts estimate that current reserves will only last for about 40 years. Views vary about how much more will be found or made economically viable to use. Gas, often a suitable replacement for oil, won't last indefinitely either. There's plenty of coal, but its use without producing pollution is a difficult nut to crack. Energy consumption is on the increase. In the first half of 2003, China's car sales rose by 82% compared with the same period in 2002. Its demand for oil is expected to double in 20 years. In India sales of the high consumption sports utility vehicles account for 10% of

³ BBC News report (2004) "Energy, Meeting Soaring Demand", Tuesday, 9 November 2004, <http://news.bbc.co.uk>.

all vehicle purchases, and could soon overtake car sales. In addition, the developed world is not standing still. In the last decade, US oil production use has increased by almost 2.7 million barrels a day – more oil than India and Pakistan’s combined use daily. The source of our energy is another problem – energy sources are often long distances from the point of consumption. Centuries ago virtually everyone would have depended on the fuel they could find within a short distance from home. Now, the energy for our fuel, heat and light travels vast distances to reach us, sometimes crossing not only continents, but diverse political and cultural societies on the way. These distances create a whole host of challenges from oil-related political instability to the environmental risks of long-distance pipelines.

The most obvious threat to the continued burning of fossil fuels is intensifying natural climate change and heating the Earth to dangerous levels. Can the greenhouse effect be ignored? There are still real costs that go with the search for and use of energy: air and water pollution, impaired health, acid rain, deforestation and the destruction of traditional ways of life. But the tank is running dry. It doesn’t have to be like this. While our energy use is unsustainable, we already know what a less intrusive alternative would look like. Some scientists believe all we have to do is decide that we will get there, and how. It will make vastly more use of renewable energy, from inexhaustible natural sources like the sun and the seas.

20.5.1 Renewable energy

Renewable energy use is predicted to increase significantly over the next decade but this will at best keep pace with rising overall demand. A survey of 3500 UK businesses, by consulting and market research firm Datamonitor, published in 2005, suggested business did not fully endorse the government’s goal of generating 10% of UK electricity needs from renewable sources such as solar, wind and biomass, by 2010. Businesses in the survey aimed to source only 5% of their energy from renewables (Hoyos and Eaglesham 2005). By 2030, renewable sources (not including biomass and nuclear) will have increased by only 1% from 3% to 4% of the world’s total use. However, costs for most types of renewable energy are expected to decrease. China is currently the biggest producer of greenhouse gases. Tony Cheng reporting for the BBC advises China’s government has passed a renewable energy law, which is intended to increase production of energy from sustainable sources.⁴ This law, Cheng reports, which will come into force early in 2006, seeks to increase the usage of solar and wind power to 10% of China’s total consumption. Rising oil prices and concerns over environmental damage prompted the move. However, while the new law has been welcomed, it has been suggested that the targets are overambitious. While there has been rapid expansion in the sustainable energy sector, it currently provides only a fraction of China’s needs. Wind generated electricity only contributes 0.01% to the power grid. It is considered that to increase sustainable energy to 10% in five years is an optimistic target. At present China relies on coal for most of its power, mining 1.8bn tons in 2004. By fixing prices for electricity from solar and wind generated power, the government hopes to create financial incentives for existing operators and attract investment to these new markets. One key fuel may well be hydrogen, which is a clean alternative for vehicles and is in abundant supply as it is a chemical component of water. But large amounts of energy are needed to produce hydrogen from water, so it will not come into its own as a clean alternative until renewable energy is widely available for the process.

⁴ BBC News report (2005) “China Looks to Renewable Power”, Tuesday, 1 March 2005, <http://news.bbc.co.uk>

Some analysts suggest that nuclear power will be needed to bridge the gap between now and the renewable future. Many environmentalists (but not all) are deeply unhappy with the idea – fission technology has been in use for a generation, but concerns remain about radioactive waste disposal and the risk of accidents. Nuclear fusion – a new form of nuclear power, which combines atoms rather than splitting them apart – could be ready by around 2040, but that is too long to wait. The British Government estimates that 56% of energy used in UK homes could be cut using currently available technologies. We can install “power generators” on our roofs by covering our houses with solar tiles, or buying miniature wind turbines the size of a satellite dish. Practically, it is thought, the energy crisis is soluble. However, making significant widespread changes to domestic energy generation will require a dramatic change in thinking for politicians, suppliers and consumers alike.

20.6 USE OF RESOURCES

Businesses need to appreciate and understand the trends in energy consumption for a number of reasons. Energy costs are a significant component of manufacturing and transportation and a key element of the unit cost of production for many products. A reduction in energy costs can produce competitive advantage. An understanding of the trends in energy sources and energy demand provides opportunities to exploit. Energy consumption in 2001 was higher than in any other year over the last 30 years (DTI 2002). Overall energy consumption for energy use in the UK has increased by 13% between 1970 and 2001 and 11% between 1990 and 2001. In 1970 natural gas accounted for 3% of total overall energy consumption whereas in 2001 natural gas made up two-fifths of all energy consumption in the UK. Since 1990 while the use of natural gas has increased by 86%, solid fuel consumption fell by 38% and accounted for 17% of all fuel consumed in 2001. The increase in natural gas consumption was due to its use in generating electricity as a result of combined cycle gas turbine power stations being introduced in 1992.

Energy consumption has changed significantly. The four primary consumers of energy are industry, the service sector, the domestic sector and transportation. Since 1970 energy consumption by the industry sector has fallen significantly while consumption by the other three sectors has increased. In 2001 the transportation sector was the largest user of energy at 34% followed by the domestic sector at 30%, industrial sector at 22% and the services sector at 14%. It is surprising to note that energy consumption has fallen steadily since 1970.

As the economy grows and activity increases with the economy it is usually associated with rises in the production, transportation and consumption of goods and services, all of which require energy. Output from the economy is measured using a constant measure of gross domestic product (GDP) to remove any inflation effects. Between 1970 and 2001 GDP in the UK more than doubled. However, energy consumption fell by 57% between 1970 and 2001. The DTI explain that this statistic is the result of the combination of energy efficiency, fuel switching and a decline in energy intensive industries. A key aspect of the UK's energy consumption is that transport energy consumption has increased by 95% between 1970 and 2001. The largest increase has been from air transport, which has nearly tripled since 1970. Energy consumption from rail and water transport has fallen over the last 30 years by 25% and 34% respectively whereas consumption from road transport has almost doubled. These statistics provide clues for businesses in a number of ways. Air transportation is a prime target for governments to raise taxes full stop, or to impose taxes to raise revenue and use them as a carrot to control pollution. The increase in road traffic creates both congestion, pollution and is a target for reducing energy consumption.

20.7 POLLUTION

Businesses are at risk from prosecution for breaching environmental legislation and pollution. The Environment Agency regularly secures prosecutions for air, water and noise pollution. The following incidents occurred during 2004 and 2005. A metal shredding plant was prosecuted for air pollution after local residents complained of skin and eye irritation and tightness in the chest and a biodiesel producer, which turns chip fat into diesel, was prosecuted for noise pollution. Watercourse pollution appears to be a more prevalent form of pollution. Pollution of surface waters and groundwater is an offence for anyone to cause or knowingly permit: the entry into surface waters or groundwater of solid waste matter, or of poisonous, noxious or polluting matter, or the discharge of trade and sewage effluent into surface waters or groundwater without prior consent from the Environmental Regulator. A water utility company was fined £50 000 and costs for allowing raw sewage to overflow into a watercourse killing more than 8000 fish. A woodchip producer was fined £60 000 and costs for permitting oil and untreated effluent to enter a watercourse. A more serious case was where the owner of an abattoir was jailed for six months and banned from working in the food industry for seven years after permitting animal blood and waste to flow into the nearby watercourse. An airport firm was fined £30 000 when it polluted a watercourse with chemicals used to clear rubber and oil from the runway, resulting in the death of 8000 fish from across 14 species. In another incident, liquid fertiliser leaked from a tank on a farm into the nearby river and again killed thousands of fish. The supplier was charged £47 000 in fines and costs and the farmer was fined £5000 with costs. In most cases the Agency issues businesses with multiple warnings prior to a prosecution.

A less reported problem is light pollution. Members of the Campaign to Protect Rural England have claimed that light pollution caused by commercial and domestic premises in East Yorkshire and North East Lincolnshire is now 30% greater than 10 years ago.⁵ They say that views of the Milky Way, northern lights and shooting stars are all but invisible to the naked eye because of the amount of ambient light. Satellite images of the area show whole swathes covered in an orange-yellow glow, which signifies intense light output from man-made structures. Ian McKechnie, the senior Environmental Health Officer at the East Riding of Yorkshire Council, says the light pollution has now got out of control. "Light pollution is now 28–30% worse than it was 10 years ago and most alarmingly half of the areas in East Yorkshire that had dark skies 10 years ago are now polluted with light." He said one of the main sources of light in rural areas is domestic security lights and the lighting in commercial glasshouses.

20.8 GLOBAL WARMING

Climate change is now widely recognised as one of the key environmental challenges facing the world today. There is a growing scientific consensus over the potential impact on the climate from increasing concentrations of greenhouse gases in the atmosphere. The greenhouse effect is the natural process by which the atmosphere traps some of the Sun's energy, warming the Earth sufficiently to support life. From the press it would appear that most mainstream scientists believe a human-driven increase in "greenhouse gases" is increasing the effect artificially. These gases include carbon dioxide, emitted by fossil fuel burning and deforestation, and methane released from rice paddies and landfill sites. According to the latest scientific research, Europe is already condemned to regular heat waves such as the one that killed 20 000 people in 2003. In addition, increasingly countries are exposed to flash floods such as those that occurred in India

⁵ BBC News report (2003) "Black Mark over Light Pollution", Friday, 7 November 2003, <http://news.bbc.co.uk>.

in July 2005. On that occasion more than 26 inches (or 65 centimetres) fell in Mumbai, which according to officials, was the heaviest rain fall ever recorded in India⁶ in a single day. As a result of these rains in Mumbai and other parts of the state of Maharashtra, 430 people lost their lives and over 150 000 were stranded. Increasingly unstable weather patterns are predicted to make forest fires, crop losses and water shortages commonplace, as global warming takes hold later in the century.⁷

An increase in the area of land covered by desert is threatening to make refugees of millions of people and send dust storms across the oceans. Recent research has found that degradation of dry lands resulting from climate change and human activities (such as farming methods) is increasing the amount of area covered by desert, causing a rising number of large and intense dust storms and without proper management will lead to unproductive desert. The impact may arise in the form of striking contrasts across the world, with the simultaneous occurrence of rising sea levels and flooding on some continents and water shortage and famine on others.

The climate research division of the Scripps Institute of Oceanography in San Diego, California, believe that they have conclusive proof that global warming is due to human activity.⁸ Their study used several scenarios to try to reproduce the observed rise in ocean temperatures over the last 40 years, such as natural climate variability, solar radiation and volcanic emissions, but none fit the bill. The lead author of the study Dr Tim Bartlett said colourfully “what absolutely nailed it was greenhouse warming”. The study, announced in February 2005, highlighted that regional water supplies will be dramatically affected with the South American Andes and western China severely affected. Already, in England, four of the five warmest years in the last 340 years have occurred in the last decade. But government agencies advise we could see a very much greater rise over the course of the next century unless action is taken to significantly reduce greenhouse gas emissions. Commenting on BBC Radio 4’s Today Programme Environment Secretary Margaret Beckett said (with reference to the UK Government’s report “Avoiding Dangerous Climate Change” published in January 2006) “we could be coming to the tipping point where change could be irreversible”.

20.9 RESPONSE TO GLOBAL WARMING

20.9.1 Earth Summit

In response to increasing concerns about climate change, the United Nations Framework Convention on Climate Change was agreed at the “Earth Summit” at Rio de Janeiro in 1992 attended by 170 heads of state. At the Earth Summit all developed countries agreed a voluntary target to return their emissions of greenhouse gases to 1990 levels by 2000. The UK is one of the few countries on course to achieve that target.

20.9.2 The Kyoto Protocol

With the passing of time it quickly became apparent that the UN Convention commitments could only be a first step in the international response to climate change. Successive climate prediction models illustrated that deeper cuts in emissions were required to prevent man’s serious interference with the climate. The Kyoto Protocol was formulated to address this issue. The Protocol was signed on 11 December 1997 in Kyoto, the ancient capital of Japan, based

⁶ BBC News report (2005) “Indian Monsoon Death Toll Soars”, Thursday, 28 July 2005, <http://news.bbc.co.uk>.

⁷ Walsh, C. (2004) “Emissions Impossible for CBI to Stomach”, Sunday, 21 March, *The Observer*.

⁸ BBC News report (2005) “Greenhouse Gases ‘Do Warm Oceans’ ”, Thursday, 17 February 2005, <http://news.bbc.co.uk>.

on principles set out in a framework United Nations Convention signed at the Earth Summit at Rio de Janeiro in 1992. As stated by the Secretary-General Kofi Annan, in his video message on the activation of the Protocol, “Today we celebrate the entry into force of the Kyoto Protocol. This is a great stride forward in our struggle to confront one of the biggest challenges we face in the twenty-first century: climate change. Scientists continue to tell us that the first signs of climate change are already visible. If this change is not addressed, sustainable development will be out of reach. Climate change is a global problem. It requires a concerted global response. The Kyoto Protocol provides a truly global framework [...]” This emphasis on climate change being a global problem requiring a global response influenced the content of the Protocol. According to Article 25 of the Protocol, it could only come into force on the ninetieth day after, first, it had been ratified by at least 55 Parties to the Convention⁹ (where these Parties referred to in Annex 1 accounted in total for at least 55% of the total carbon dioxide emissions for 1990) by depositing their instruments of ratification, acceptance, approval and accession. Following the decision of the US and Australia not to ratify, Russia’s position became crucial for the fulfilment of the 55% emissions condition. Russia had deliberated over ratification it is thought due to political and economic considerations. It finally did ratify on 18 November 2004, and the Kyoto Protocol came into force 90 days later – on 16 February 2005.

20.9.3 Pollution control targets

The Kyoto Protocol is significant as it is the first treaty of its kind to impose legally binding commitments on countries to improve pollution control. In this instance, to reduce greenhouse gas emissions by 5.2% below 1990 levels over the period 2008–2012. The six targeted gases (listed in Annex A of the Protocol) are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆).¹⁰ These gases are considered to at least contribute to global warming – the rise in global temperature which may have severe consequences for life on Earth. However, these reductions in harmful gases are considered modest and the US has yet to support the Protocol. This has led to criticisms that the agreement is toothless, as well as being virtually obsolete without US backing. The Bush administration dubbed the treaty “fatally flawed”, partly because it does not require developing countries to commit to emissions reductions (which includes China and India). The lack of US backing, it has been implied, is a result of business pressure on the President. The 2004 US presidential elections, with an estimated cost of \$4 billion, were classified as the most expensive ever. It was reported Larry Noble, of the Washington-based Center for Responsive Politics (CRP), had said: “Companies make political contributions and support because they want to have someone in office who is sensitive to their needs. Most look at it as investment, and they expect a return.”¹¹ The pharmaceutical industry heaved a huge sigh of relief that Democrat plans to limit refundable drug costs on state health programmes would not be enacted for at least another four years. Pfizer and similarly Glaxo SmithKline employees must have felt that their donation to the Republican cause was well spent. Car makers (who donated nearly \$1m to the Republicans) were also relieved that Kerry’s emissions proposals would not see the light of day.

⁹ The term “Party” refers to a party to the Protocol and the term “Convention” means the United Nations Framework Convention on Climate Change adopted in New York on 9 May 1992.

¹⁰ Kyoto Protocol to the United Nations Framework Convention on Climate Change. Weblink: <http://unfccc.int/resource/docs/convkp/kpeng.html>.

¹¹ Morgan, O. (2004) “The big donors”, Sunday, 7 November, *The Observer*.

20.9.4 Sufficiency of emission cuts

The head of the UN Environment Programme, Klaus Toepfer, said at the time of the Protocol coming into force that Kyoto was only a first step and much hard work needed to be done to fight global warming.¹² Developed countries have only committed to cut their combined emissions to 5.0% below 1990 levels by 2008–2012 whereas there is a consensus among many climate scientists that in order to avoid the worst consequences of global warming, emission cuts in the order of 60% across the board are required.¹³ Pearce advises that the clock is ticking and that every year the world is releasing almost 7 billion tonnes of carbon into the atmosphere (Pearce 2004). He comments that before the industrial age the CO₂ level was steady at around 280 parts per million (ppm) whereas in 1997, when the Kyoto Protocol was drawn up, the CO₂ level had reached 368 ppm and by 2004 it had reached 379 ppm. Pearce reports that most predictions of soaring temperatures, floods, droughts, storms and rising sea levels are based on a concentration of 550 ppm and that on current trends, this figure is likely to be reached by the second half of this century. Furthermore as there are time lags in natural systems such as ice caps and ocean circulation, changes would continue to take place for a considerable time even after CO₂ levels had stabilised.

20.9.5 US climate pact

On 28 July 2005 the US entered into a joint agreement with Australia and others to cut greenhouse gas emissions in a pact which rejected the Kyoto Protocol on climate change. The alternative to the Kyoto protocol includes China, South Korea, India and Japan as well as Australia. The signatories argue that it complements rather than weakens the 1997 Kyoto agreement. Reticence on the part of US President Bush to support Kyoto is based on his belief it would damage America's industry and economy despite the stance of many western governments who argue it is a critical step to address global warming (Reid 2005). Both Australia and the US believe that the best way to cut government emissions is through the development of new technology rather than setting emission caps. However, the problem is that this new technology is not just round the corner and pollution is not confined to its source, it affects us all. China's lack of attention to emissions control is already having an impact on Hong Kong. While Hong Kong has some of the most environmentally friendly policies in the world, every autumn its sky is turned brown and smoggy as dust and poisonous gases are blown over from mainland China by the prevailing winds. Hong Kong is now a service economy dependent on sectors such as finance and tourism and neither expatriate bankers nor tourists are keen on smog (Mallet 2005). Additionally pollution and smog are exacerbating problems for those with respiratory ailments.

20.9.6 European Union

Under the Kyoto Protocol, the European Union and its member states have agreed to meet their commitments jointly, DEFRA advise this "bubble" arrangement allows the EU's target to be redistributed between member states to reflect their national circumstances, requirements for economic growth and the scope for further emission reductions.¹⁴ In June 1998, under the

¹² BBC News report (2005) "Kyoto Protocol Comes into Force", 16 February 2005, <http://news.bbc.co.uk>.

¹³ BBC News report (2005) "Q+A: The Kyoto Protocol" 16 February 2005, <http://news.bbc.co.uk>.

¹⁴ Climate change: Action to tackle global warming Action being taken to tackle climate change. Weblink:<http://www.defra.gov.uk/environment/climatechange/trading/eu/intro/index.htm>.

UK Presidency of the EU, environment ministers agreed how the target would be shared out. The UK agreed to reduce its emissions by 12.5% which is its legally binding target under the Kyoto Protocol. Targets for other member states ranged from -21% for Germany and Denmark to -6% for the Netherlands, +13% for Ireland and +27% for Portugal. There is concern that emission rates are not being cut at the desired rate. Industrialised countries cut their overall emissions by about 3% from 1990 to 2000. But this was largely because a sharp decrease in emissions from the collapsing economies of former Soviet countries masked an 8% rise among rich countries. The UN says industrialised countries are now well off target for the end of the decade and predicts emissions 10% above 1990 levels by 2010.

20.9.7 Domestic government response to climate change

Government departments have begun an interdepartmental process to consider how their policy and operational responsibilities will be affected by climate change. A study, sponsored by the Government's Global Atmosphere Division, was undertaken by the In House Policy Consultancy,¹⁵ to explore the potential implications of a changing climate across the whole range of the policy and operational responsibilities of DEFRA and its Agencies and to advise on the next steps regarding the items identified (DEFRA 2003). The focus of the study was to identify key issues that needed to be addressed in the short to medium term to take account of potential vulnerabilities to climate change over the next 50 years. To provide perspective, the report referred to the new climate change scenarios that DEFRA had published in April 2002, which provided improved information on possible changes in the UK's climate. The scenarios identified suggest hotter, drier summers, with milder, wetter winters, higher sea levels and a weakened Gulf Stream. From the research of the workings of the Department, the authors clearly found: aspects of a silo mentality (in terms of cross Directorate working); a lack of a common approach to appraising implementation options, difficulties of implementation of central government policy, through the regions; and too much focus on short-term perspectives (reflecting the government spending review processes), to the detriment of long-term planning.

In summary the report drew management's attention to:

- the importance of seeking ways to set policy in a longer-term context, articulating longer-term vision and priorities;
- the need to review progress on the development of a risk management framework to help divisions work with the uncertainties involved in climate change and to produce a toolkit for policy makers.

In addition the report set out a series of key actions for the Global Atmosphere Division aimed at helping policy makers and stakeholders to address the difficult gap between awareness of potential climate change and practical integration of climate change considerations into policy making. The report suggested that the GA Division:

- develop a framework setting out the key principles for risk management in relation to climate change;
- produce robust practical guidance for policy makers which included methodological tools aimed at promoting a consistent approach across the Department to appraise options;

¹⁵ The In House Policy Consultancy (IHPC) is based in the Department for Transport and serves the office of the Deputy Prime Minister, DfT and Defra.

- produce case studies which included practical guidance for particular audiences; and
- seek resources to enable the government offices to provide regional leadership as focal points on climate change.

The EU member states collectively agreed to an 8% reduction at Kyoto. The UK's contribution to this target has been set at a 12½% reduction on the 1990 emission levels of six greenhouse gases. The UK has also set itself a domestic objective that goes beyond our legally binding Kyoto target – to reduce emissions of carbon dioxide by 20% on 1990 levels by 2010.¹⁶ Margaret Beckett, the Environment Secretary, had lobbied hard for the extra cut, in the teeth of opposition from our own Department of Trade and Industry and succeeded to the horror of British businesses (Walsh 2004). However, Margaret Beckett, the environment secretary, in an interview with the national press on 20 April 2004, admitted that Britain was “more adrift from our domestic carbon dioxide targets than anybody really anticipated”. Mrs Beckett said Labour might “at some point” have to address the politically explosive prospect of building a new Sellafields. At some stage a decision will have to be made whether to replace Britain's aging nuclear power stations, which do not emit greenhouse gases but create waste disposal problems. Any shortfall from low-carbon renewable sources will be exacerbated by the fact that the no-carbon contribution from nuclear is set to fall considerably, as Britain's nuclear generated electricity is forecast to drop from 22% to 7% by 2020.

20.9.8 Levy

The government has published a draft UK climate change programme (available from the Department of Environment, Food and Rural Affairs (DEFRA)), which shows the policies that will deliver the UK's objectives for reducing greenhouse gas emissions. The government intends that all sectors make a contribution in reducing greenhouse gas emissions, and have drawn a programme to this effect, with a key element being the climate change levy announced in the 1999 Budget. The Climate Change Levy (CCL) is an environmental tax that came into force on 1 April 2001 and is part of a range of measures that are designed to help the UK meet its legally binding commitment to reduce greenhouse gas emissions.

The primary law on Climate Change Levy is contained in the Finance Act 2000 Part II, clause 30 and in Schedules 6 and 7. The Act also provides for secondary legislation that deals with the implementation aspects of the tax, such as registration and accounting procedures. The levy is applied as a specific rate per nominal unit of energy. There is a separate rate for each category of taxable commodity (e.g. electricity). The rates are based on the energy content of each commodity and are expressed in kilowatt-hours (kWh) for gas and electricity, and in kilograms for liquid petroleum gas and other taxable commodities. This is in recognition of the different billing conventions for the products. The levy is chargeable on the industrial and commercial supply of taxable commodities for lighting, heating and power by consumers in the following sectors of business: industry, commerce, agriculture, public administration and other services. At this time the levy does not apply to taxable commodities used by domestic consumers, or by charities for non-business use. The commodities that are taxable are as follows: electricity, natural gas as supplied by a gas utility, petroleum and hydrocarbon gas in a

¹⁶ Source: HM Customs and Excise website www.hmce.gov.uk.

liquid state, coal and lignite, coke, and semi-coke of coal or lignite and petroleum coke. There are a number of exclusions such as oil, steam and low value solid fuel.

20.9.9 Emissions trading

Emissions trading works by allowing countries to buy and sell their agreed allowances of greenhouse gas emissions. Highly polluting countries can buy unused “credits” from those which are allowed to emit more than they actually do. Countries are also able to gain credits for activities which boost the environment’s capacity to absorb carbon. These include tree planting and soil conservation, and can be carried out in the country itself, or by that country working in a developing country. More than 2000 UK installations – from factories to power plants – will be able to trade in the new “pollution permits”. Different sectors face different restrictions: a 13% cut for electricity generators, for example, and more than 30% for offshore oil and gas operators.

20.9.10 Impact on business

Global warming and its influence on existing and planned legislation is likely to impact production in both anticipated and unanticipated ways. The beleaguered coal industry looks especially vulnerable, with several operators reportedly considering closing their coal-fired plants altogether (Walsh 2004). The move by government to increase energy supplies from greenhouse gas-free sources may provide business with new exploitable opportunities, although wind power for instance has proved more expensive to generate than hoped. Multinationals supplying global markets may well move production plants to countries where emission levies and energy costs are less onerous, if they consider the respective government’s policies will remain unchanged for a number of years. It has been muted that the motor industry for instance have claimed that car makers may be encouraged to relocate to less stringent regimes in mainland Europe, undermining the scheme’s environmental benefits and robbing the UK of jobs in the process. In response to the business community’s disquiet, Ministers argue that an enlarged renewable energy sector will create jobs. They emphasise that the changes will be phased in gradually and point out emissions cuts are nothing new. Tom Delay, head of the Carbon Trust, predicts that, “Those that act now by cutting carbon emissions will be tomorrow’s winners, whereas those that wait are risking their future business success”. Those companies that are willing to demonstrate their green credentials are likely to increase market share. The Prius hybrid car produced by the Japanese car maker Toyota is set to be “a sales smash hit” (Mackintosh and Milne 2005). The Prius saves petrol by using a battery and electric motor as well as an engine. As reported by Mackintosh and Milne, the consultancy JD Power have forecast Prius sales will double in 2005 to 108 000, the fastest growth of any vehicle. The hybrid has been helped by incentives in London where hybrid drivers are exempt from the £8 a day congestion charge. While the vehicles cost more to make manufacturers have to balance whether to pass the whole of the increase onto the consumer or accept lower profits.

20.10 STIMULATION TO ENVIRONMENTAL CONSIDERATIONS

20.10.1 FTSE4Good Index

Attempts are now being made to incorporate environmental considerations into formal stock exchange indices in the UK and other financial markets (Griffiths and Wall 2005). A new FTSE4Good Index was launched in July 2001, using social and ethical criteria to rank corporate

performance. All companies in three sectors were excluded, namely tobacco, weapons and nuclear power representing 10% of all FTSE companies. Of the remaining companies, three criteria were applied for ranking purposes: environment, human rights and social issues. If a company “fails” in any one of these criteria, it is again excluded. The FTSE4Good selection criteria were designed to reflect a broad consensus on what constitutes good corporate responsibility practice globally. The criteria originate from common themes of 10 sets of declared principles. Using a widespread market consultation process, the criteria are regularly revised to ensure that they continue to reflect standards of responsible business practice, and developments in socially responsible investment as they evolve. Since the launch of the index series the environmental and human rights criteria have both been strengthened. The FTSE4Good inclusion criteria are intended to be challenging but achievable, in order to encourage companies to try to meet them. The data used in assessing companies’ eligibility for inclusion in the FTSE4Good indices is independently researched by EIRIS and is available for scrutiny by companies and their advisers.

20.10.2 Carbon Trust

The Carbon Trust is an independent company funded by government. Its role is to help the UK move to a low carbon economy by helping business and the public sector reduce carbon emissions now and capture the commercial opportunities of low carbon technologies. The Trust provides free, practical advice to business and public sector organisations to help reduce energy use. Saving energy saves money – and helps combat climate change by cutting carbon emissions. The 2003 UK Government’s Energy White Paper set an aspiration for the UK to reduce carbon emissions by 60% and create a low carbon economy by 2050. The Trust believes that it is technically feasible to achieve this, through a step change in energy efficiency and the development and greater use of low carbon technologies (for example, renewables and hydrogen). In addition, it considers there is a need for sustained action to remove the technical, economic and regulatory barriers that impede the transition to a low carbon economy. The Trust is focussed on reducing carbon emissions in the short and medium term through energy efficiency and carbon management and in the medium and long term through investment in low carbon technologies. The Trust aims to deliver its objectives through best practice programmes, to inform and influence behaviour and to build skills and resources. Its declared objectives are to:

- ensure that UK business and public sector meet ongoing targets for CO₂ emissions;
- improve the competitiveness of UK business through resources efficiency; and
- support the development of a UK industry sector that capitalises on the innovation and commercial value of low carbon technologies.

The Trust declares on its website (www.thecarbontrust.co.uk) that it is developing and implementing programmes that will accelerate the transition to a low carbon economy, which include:

- Delivering independent information and impartial advice on energy saving and carbon management to the business and public sector.
- Promoting the government’s energy efficiency Enhanced Capital Allowances Scheme to encourage investment by business in qualifying energy saving technologies and products and managing the Energy Technology List of qualifying energy saving equipment.

- Investing in the development of low carbon technologies in the UK:
 - Research and development funding to encourage innovation in the low carbon sector.
 - Technology Acceleration Projects for specific technologies and markets with significant carbon reduction potential and where the Carbon Trust can be material.
 - Direct help for pre-commercial and commercial organisations with low carbon technologies through the Carbon Trust’s Incubator Programme and Venture Capital.

20.10.3 Public pressure

In December 2003 the annual report of the Co-operative Bank into ethical purchasing included the results of a survey of 1000 customers. This survey sought to assess the extent of ethical boycotting of various products (goods and services) and its impact on the industries involved. The bank extrapolated the results (from this small sample) to draw the conclusion that over the previous 12 months the cost in the UK of consumers switching brands for ethical/environmental reasons was over £2.6 billion in lost business. As many as 52% of consumers surveyed claimed to have boycotted at least one product during that period and over 66% claimed they would never return to a product once it had been associated with unethical/environmentally damaging practices. The report also claimed that there was also extensive evidence to support the claim that positive associations with ethical/environmental initiatives are good for business. For example, the total sales of ethical/environmental products rose by 44% from £4.8 billion to £6.9 billion between 1999 and 2002. Indeed the market share of such products was estimated to be rising by 30% over the same period.

20.11 ENVIRONMENTAL SUSTAINABILITY

“Sustainable” and “sustainability” are now key trigger words in the world of advertising for positive, emotive images associated with words such as “green”, “wholesome”, “justice”, “goodness” and “environment” among others. They are used with sophistication to sell holidays, cars and even lifestyles. Businesses are capitalising to effect a progressive groundswell towards sustainability. Marketing is indirectly reflecting the national and international initiatives to preserve natural resources and the environment we collectively enjoy. The catalyst for these initiatives was the United Nations “Earth Summit”, where the term “sustainability” came into popular use. The term is used to recognise that social, economic and environmental issues are linked and must be addressed together, rather than in the fragmented way they are often dealt with. It was perhaps the first time countries around the world admitted that our way of life was not sustainable in the long term. With growing concern over environmental pollution and long-term sustainable use of environmental resources, the global community had come together to develop objectives to progress sustainable development. This resulted in Agenda 21, the Rio Declaration on Environment and Development and the Statement of Principles for the Sustainable Management of Forests being developed and adopted by more than 178 governments at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, in 1992. Agenda 21 is a plan of action addressing the human impact on the environment to be implemented globally, nationally and locally by organisations and governments associated with the United Nations. Agenda 21 was followed by the Commission on Sustainable Development (CSD) created in December 1992 to monitor and report on implementation of the agreements at the local, national, regional and international levels. Progress was reviewed in 1997 at the United Nations General Assembly meeting and a full implementation of Agenda 21, the Programme for Further Implementation of Agenda 21 and

the Commitments of the Rio principles were reaffirmed at the World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa, from 26 August to 4 September 2002.

An important issue in today's business environment is that a firm must be seen to be "green" among the local community, customers, potential customers and stakeholders in the business. A lack of attention to environmental and sustainability issues will pose a risk to potential growth. Ottman (2000) suggests the following green marketing strategies in order to get the message across:

1. Adopt a thorough approach to corporate greening. This includes all functions of the business. Everything from being energy efficient to introducing environmentally friendly fuel.
2. Appoint a highly visible chief executive officer (CEO) with environmental leanings and make him/her the centrepiece of your corporate social image, e.g. Anita Roddick of the Body Shop.
3. Be transparent. Allow stakeholders access to information so that they know exactly what are the level of potential health risks associated with various projects.
4. Work cooperatively with third parties, such as government agencies and environmental pressure groups.
5. Vigorously communicate your company's commitment to accountability and continuous improvement. This can include "cause-related marketing". For example, the UK supermarket giant Tesco works with a different charity every year.
6. Act now. Do not wait to get the green message across.

20.12 SUMMARY

This chapter examined energy sources, renewable energy and current energy consumption. The world is running short of traditional sources of energy and the development of renewable energy particularly in emerging economies such as China and India is too slow. The chapter described global initiatives to address greenhouse emissions and global warming. It looked at the stimulation to controlling adverse impacts on the environment in the UK. The creation of the FTSE4Good Index was described, which ranks corporate performance in terms of attention to the environment, human rights and social issues. Additionally it looked at the creation of the Carbon Trust, a government funded company to move the UK to a low carbon economy. Words like "sustainability" are now key trigger words in the world of advertising for positive, emotive images associated with words such as "green" and "environment" and are used with sophistication to sell holidays, cars and consumables. Businesses are capitalising to effect on a progressive groundswell towards sustainability. There are a number of diverse sources of both risk and opportunity from the environment. Energy supplies and costs are a threat, whereas the development of renewable energy sources is an opportunity. Levies on pollution control are a threat, whereas the proactive management of production and product composition can lead to brand development and competitive advantage.

20.13 REFERENCES

- DEFRA (2003) *The Impacts of Climate Change: Implications for DEFRA*, DEFRA, January 2003.
- DTI (2002) *Energy Consumption in the United Kingdom*, Energy Publications, Department of Trade and Industry, London, UK.

- Griffiths, A. and Wall, S. (2005) *Economics for Business and Management, a Student Text*, Pearson Education Limited, Harlow, England.
- Hoyos, C. and Eaglesham, J. (2005) "Businesses Blame Fuel Costs on Whitehall", *Financial Times*, Tuesday, 11 October 2005.
- Klinger, P. (2005) "Energy Costs and EU Outlook Sour Tate & Lyle's Outlook", *The Times*, Friday, 30 September 2005.
- Mackintosh, J. and Milne, R. (2005) "Hybrid Makers Yearn to Fuse Green Credentials with Profit", *Financial Times*, Tuesday, 20 September 2005.
- Mallet, V. (2005) "Bad Smells and Smog from Over the Border" *Financial Times*, Tuesday, 20 September 2005.
- Ottman, J. (2000) *In Business*, 22, 6.
- Pearce, F. (2004) "Kyoto Protocol is Just the Beginning", *New Scientist* print edition, 10 October, www.newscientist.com/article.
- Reid, T. (2005) "US in Plan to Bypass Kyoto Climate Control", *The Times*, Thursday, 28 July 2005.
- Reinhardt, F. (2001) "Tensions in the Environment", in *Mastering Risk Volume 1: Concepts*, executive editor James Pickford, Pearson Education Ltd, UK.
- Walsh, C. (2004) "Emissions Impossible for the CBI to Stomach", *Observer*, Sunday, 21 March 2004.

The last chapter examined environmental risk and the business impacts of consumption of natural resources, pollution and global warming. This chapter looks at the legal context of a business. Businesses do not operate in a vacuum and by their nature must engage with other businesses. The activities of business organisations are subject to a wide range of legal liabilities or obligations. Legal liability describes a situation where a person is legally responsible for a *breach of an obligation* imposed by the law. Such obligations may arise from the operation of either civil or criminal law. The activities of business are subject to a wide range of potential liability. *Contractual liability* arises when two or more persons enter into a legally enforceable agreement with each other, *tortious liability* consists of the breach of a duty imposed by the law and *criminal liability* arises from committing a crime as defined by criminal law. The legal system can be both a source of risk exposure (for example, breach of contractual obligations) and risk mitigation (for example, by the use of patents). The purpose of this chapter is to draw out the categories of legal risk that a business is exposed to for the purpose of developing a risk taxonomy and understanding the sources of risk. It is not intended to be a comprehensive guide to business law and readers seeking specific guidance on such matters as, say, statutes, case law, legal services or contract law should refer to the standard reference texts and where appropriate seek legal opinion. The structure of this chapter is included in Figure 21.1.

21.1 DEFINITION OF LEGAL RISK

What is legal risk? Legal risk for a business may be defined as failing to: operate within the law, be aware of its legal obligations, honour contractual commitments, agree remedies for compensation with a supplier in the event of default, show evidence that it has operated within the law, or recognise and effectively manage legal threats.

21.2 SCOPE OF LEGAL RISK

The sources of risk considered to be embraced within the term “legal risk” are very considerable. Legal risk for businesses may be considered to include, but is not limited to:

- Breach of environmental legislation (see Chapter 20).
- Inaccurate listing information in terms of misstatements, material omissions or misleading opinions.
- Breach of copyright.
- Loss of business as a result of senior management time being “lost” through a protracted legal dispute.
- Prosecution for breach of the law.

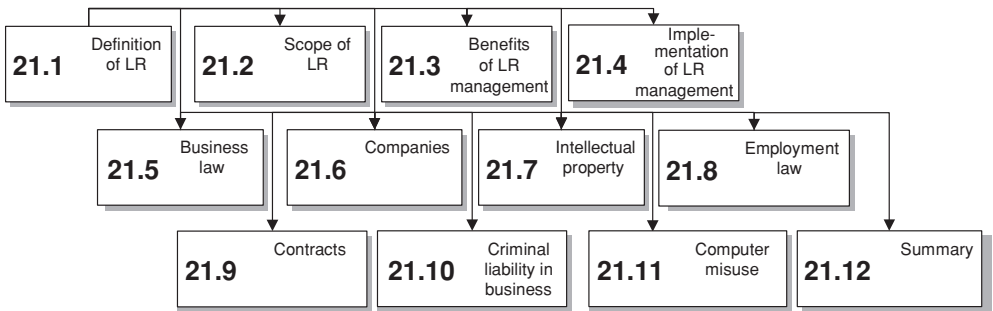


Figure 21.1 Structure of Chapter 21

- Legal disputes with overseas trading partners arising from, say, a lack of appreciation of the difference between the local laws and English law.
- Loss of reputation as a result of a prosecution or a dispute with a customer, partner or supplier.
- Lost legal disputes through poor record keeping.

21.3 BENEFITS OF LEGAL RISK MANAGEMENT

Legal risk management affords a business benefits as it:

- Reduces the amount of management and external support time involved in legal disputes.
- Provides for greater contractual, regulatory and statutory compliance.
- Reduces the risk of reputational damage.
- Promotes a more thorough review of contracts engaged in at home and overseas.

21.4 IMPLEMENTATION OF LEGAL RISK MANAGEMENT

The development of a sound system of risk management will depend on a number of issues such as:

- Understanding the legal framework within which companies operate.
- Having legal representatives review major contracts before completion.
- Maintaining legal representation.
- Ensuring annual reports and accounts are accurate.
- Ensuring compliance with copyright, trademark and patent law.
- Ensuring compliance with client confidentiality requirements.
- Reviewing current product law prior to the release of new products into existing and new markets.
- Maintaining systems and processes which adhere to employment law.
- Ensuring employees are aware of the laws that they have to adhere to in the fulfilment of their role and duties and providing training and monitoring where required.
- Providing effective legal defence against challenges.

21.5 BUSINESS LAW

An understanding of the sources of legal risk arising from business activities requires examination of the basic features of the English legal system. It should be noted that English law refers to the law as it applies to England and Wales. Scotland and Northern Ireland have their own legal systems. This chapter is exclusively concerned with English law.

21.5.1 Classification of law

It is common practice to divide English law into categories. These categories are used because they are convenient divisions of the law. The categories are not black and white. Categories may overlap and there are sometimes differences of opinion as to the category into which some areas of the law fall. The primary categories of law may be considered to be public and private law. Their sub-elements are illustrated in Figure 21.2.

Public law

Public law is concerned with the relationship between the state and its citizens. This comprises three key areas:

- Constitutional law is concerned with the workings of the British constitution. It concerns such matters as the position of the Crown, the functioning of central and local government, the composition and procedures of Parliament, citizenship and the civil liberties of individual citizens.
- Administrative law is concerned with the resolution of complaints made by individuals against the decisions of administering agencies, such as government agencies dealing with child benefit, income support and state pensions.
- Criminal law relates to kinds of wrongdoing which pose such a serious threat to the good order of society that they are considered crimes against the whole community. The criminal law makes such anti-social behaviour an offence against the state and offenders are liable to punishment. The state accepts responsibility for the detection, prosecution and punishment of offenders.

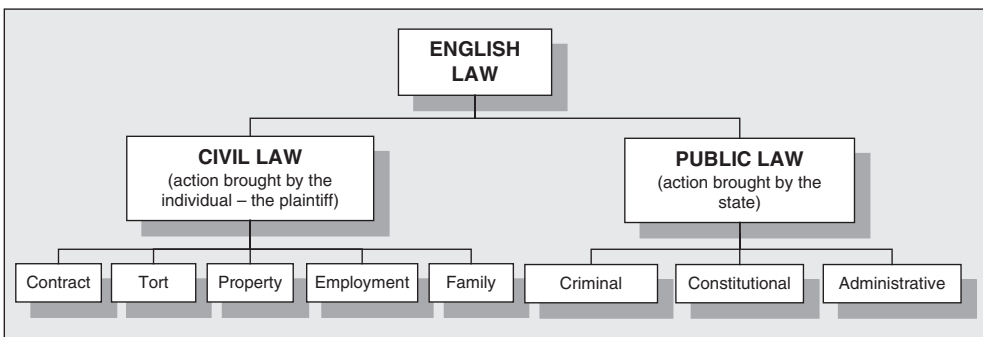


Figure 21.2 The division between public and private law.

Private Law

Private law is primarily concerned with the rights and duties of individuals towards each other. The legal process is commenced by the aggrieved citizen and is often contrasted with criminal law.

Civil and criminal law

A major distinction can be drawn between civil and criminal law.

Criminal law: Criminal cases, which are called prosecutions, are normally initiated by the state but may be brought by a private citizen, but this is rare. If a prosecution is successful the accused or defendant is liable to punishment. This affords no direct benefit to the victim of the crime since he/she does not receive fines paid or the fruits of a criminal's labours in prison. Although punishment does not compensate victims, it is now possible for the criminal courts to make reparation payable directly to his/her victim under the Powers of Criminal Courts Act 1973.

Civil law: In contrast, civil actions are brought by an individual (known as the plaintiff), who is seeking compensation for the loss he/she has suffered as a result of the actions of the defendant and the case is heard in a civil court. The plaintiff will be successful if he/she can prove his/her case on the balance of probabilities, that is the evidence weighs more in favour of the plaintiff than of the defendant. If the plaintiff wins his/her action the defendant is said to be liable. If damages are awarded as a result of a successful civil action, they are payable to the plaintiff and are generally assessed on the basis that they should compensate and not punish. A plaintiff is not required to commence a civil action and he/she can discontinue it at any time before judgement. Many of the laws affecting businesses and businessmen are part of the civil law, especially property, contract and tort law.

21.6 COMPANIES

21.6.1 The Memorandum of Association

The Companies Act 1985 and the Business Names Act 1985 together contain a system for controlling the names and business names of companies. A private company whether limited by shares or guarantee must end its name with the word "limited". A public company must end its name with the words "public limited company". Private companies limited by guarantee may apply for exemption to leave off the word "limited" from the name. The section of the Act gives automatic exemption if the conditions are satisfied. A name will not be accepted by the Registrar if it is the same as one that already exists on the index of names. Similar names will be registered. A name will not be registered if it is, in the opinion of the Trade Secretary, offensive or if its publication would be a criminal offence. A name which includes "bank" in its title has to have the approval of the Bank of England. For the use of "charity" or "charitable" the approval of the Charity Commission is required. Sections of the Act require that the company's full name must be shown in an obvious place and in readable form outside of the registered office and on all places of business and on all business letters, notices, official publications, cheques, orders for money or goods and of course receipts and invoices.

21.6.2 Articles of Association

A company may draft its own Articles or adopt Table A of the Schedule to the Companies (Tables A–F) Regulations 1985. Articles specifically prepared must be printed, divided into paragraphs numbered consecutively and signed by each subscriber to the memorandum in the presence of at least one witness. The articles together with the memorandum when registered are a contract which binds the company and the members as if signed and sealed by each member. The members are bound to the company by the provisions of the articles. Similarly the company is bound to the members in respect of their rights as members. The company may alter or add to its articles by a special (or written) resolution subject to certain restrictions.

21.6.3 Financing the company

The share capital of a company may be divided into preference and ordinary shares. In addition, both of these classes of share may be issued as redeemable by the company at a future date. Holders of preference shares have the right to payment of a fixed dividend, e.g. 10% of the nominal value, before any dividend is paid on the other shares. However, there is no right to such dividend unless the company has sufficient distributable profits to pay it. This is why preference shares differ from loan capital. Interest on loan capital must be paid whether the company has distributable profits or not. Ordinary shares rank for dividend behind preference shares and also sometimes the terms of issue provide that the preference shares shall have the right to claim repayment on capital before the ordinary shares if the company is wound up. Ordinary shares therefore carry most risk. Generally they have most of the voting rights in general meetings and therefore control the company. Trading companies have an implied power to borrow and “charge” their assets as security for a loan, i.e. to give the lender a right to appoint, for example, a receiver to sell the company’s assets in order to repay the loan if the company does not otherwise pay it. The memorandum usually gives an express power to borrow and details of the extent to which the company can charge its assets as security. A debenture is a written document (in the form of a deed), which forms the evidence that a lender has made a loan to a company. The modern use of a debenture is to secure a loan or an overdraft facility from a bank. Debenture stock is found where the loan is to come from the public. Those who subscribe for the debenture stock receive a stock certificate rather like a share certificate.

21.6.4 The issue of shares and debentures

In accordance with the Companies Act the directors of public and private companies cannot issue shares without the express authority of the members. This is usually given by the members by ordinary resolution at a general meeting of the company. The authority may be given for a particular allotment of shares or it may be a general power (limited for a maximum period of five years).

21.6.5 The official listing of securities

The Financial and Services Act 2000 gives express liability to those responsible for the listing particulars for misstatements, material omissions and misleading opinions. The Act makes statutory only “financial condition” information. This is information which investors and their professional advisers would reasonably require in order to make an informed assessment of

the company's financial position, its assets and liabilities and prospects. The remedy given is for persons suffering loss to sue for financial compensation. As regards civil claims the Act sets out who can be responsible for all or some of the listing particulars. These include the issuing company and its directors and anyone who expressly takes responsibility for part or parts of the particulars such as an expert who authorised the contents of the particulars or part of them. However, this does not preclude a plaintiff from suing for fraud or misrepresentation under the Misinterpretation Act 1967.

21.6.6 The remedy of rescission

The main remedy for loss resulting from a misstatement in a prospectus is damages based either on breach of a statutory duty under the Financial Services Act 1986 (or the Public Offers of Securities Regulations 1995) or the Misinterpretation Act 1967 or at common law citing case law which lays down the principles of liability for negligent misstatements. The remedy of rescission involves taking the name of the shareholder off the register of members and returning money paid to the company by him/her.

21.6.7 Protection of minority interests

To fully explain the protection of minority interests the case law that needs to be referred to is beyond the scope of this book; however, it is appropriate to state here that a minority with a small shareholding has redress through the courts where they believe their interests are not being protected. One such instance is fraud on the minority where fraud in this context means some sort of improper behaviour by the majority which amounts to an abuse of their voting control. There are three main areas. Where the minority itself is defrauded, the proper purpose rule where if directors propose to use their powers or those of the company for improper use then a minority shareholder can bring a representative claim asking that the transaction in question is set aside or stopped. The last area is where the company is defrauded. Actions here are of an entirely different nature. The member sues here to put right a wrong done to the company and not (except indirectly) a wrong to its members.

21.6.8 Duties of directors

The relationship between a company and its directors is that of principal and agent and as agents the directors stand in a fiduciary relationship to their principal, the company. In addition directors owe a duty of care at common law not to act negligently in managing the company's affairs. Examples of fiduciary duties include the requirement for directors to use their powers for the proper purpose, that is for the benefit of the company. Directors must not take secret profits and benefit from the company. There is nothing in the Companies Act which sets out the standard of skill and care which a director must bring to his work and hence where remedies are sought reference is made to case law. Non-executive directors without business qualifications or experience are only required to "do their best". Non-executive directors with relevant qualifications and/or experience in business must exercise such reasonable skill and care as may be expected from a person of his/her professional standing and/or experience. Executive directors such as finance directors are normally employed for their expertise in company matters as stated under their contracts of service. There is commonly an implied

term in the contract of service that the director will exercise the reasonable skill and care which a person in his position ought to have.

21.7 INTELLECTUAL PROPERTY

Most advanced industrial economies are progressively becoming “knowledge based” so that questions of intellectual property rights (IPRs) are becoming ever more important. The value of intellectual property can quickly be destroyed unless businesses enforce their rights in this area. A clear risk to any business is that it does not use the law to protect its intellectual property, which can be an extremely valuable business asset. Intellectual property is the term used to refer to a product or process that is marketable and profitable because it is unique. This uniqueness is protected by *patent law*, which gives protection to technological inventions. The law of *copyright* protects, for instance, rights in literacy, musical and artistic works. The law of *trade marks* and *service marks* protects the use of a particular mark if it is used in trade. The law relating to *registered designs* protects articles that are mass-produced but distinguished from others by a registered design, which appears upon them. The law also protects those in business from competitors who maliciously belittle their products or who pass off their products as those of another business. There is also some protection for businesses with regard to, for instance, the use by employees of confidential information. The primary legislation addressing these issues is to be found in the Copyright, Designs and Patents Act 1988 and the Trade Marks Act 1994.

21.7.1 Patents

Patents are a form of risk response planning. Patents are a powerful way of protecting market share (for a limited time) and have a direct impact on bottom-line performance. While in existence they are a form of monopoly, but when they expire market share can be severely curtailed. On the announcement in 2002 that a US court had overturned patents on one of its top-selling drugs, the share price of UK drugs giant GlaxoSmithKline (GSK) slumped to a two year low. The US court had ruled that patents on GSK’s antibiotic Augmentin were invalid, clearing the way for competitors to produce generic versions of the drug. At the time Augmentin attracted global sales of \$2bn in 2001 and accounted for about 7% of GSK’s annual sales.¹ In October 2004 the New York-based company Pfizer, one of the world’s largest drugs companies (with a significant presence at Sandwich, Kent, England), warned the market that its profits could be affected by the expiry of patents on four key medicines in 2005. Pfizer cautioned that sales in 2005 were likely to be affected by the advent of competitor drugs to four of its most popular medicines. Patents on anti-fungal drug Diflucan, epilepsy treatment Neurontin, antibiotic Zithromax and hypertension treatment Accupril would all expire in 2005. The four drugs at the time had a combined sales value of more than \$5bn.² Patents are granted to inventors by government and give inventors the right for a limited period to stop others from making, using or selling their inventions without permission. When a patent is granted, the invention becomes the property of the inventor, which – like any other form of property or business asset – can be bought, sold, rented or hired. It also brings the right to take legal action against others who might be infringing the invention and to claim damages. UK patents last

¹ BBC News report (2002) “Drugs Giant Hit by Patent Woes”, Friday, 24 May 2002, <http://news.bbc.co.uk>.

² BBC News report (2004) “Patents Set to Hit Pfizer Profits”, Wednesday, 20 October 2004, <http://news.bbc.co.uk>.

for up to 20 years and are available from the UK Patent Office. A patent empowers the owner (the “proprietor”) of an invention to take legal action against others to prevent the unlicensed manufacture, use, importation or sale of the patented invention. This right can be used to give the proprietor breathing space to develop a business based on the invention, or another person or company may be allowed to exploit the invention and pay royalties under a licensing agreement. Patents are generally intended to cover products or processes that possess or contain new functional or technical aspects; patents are therefore concerned with, for example, how things work, what they do, how they do it, what they are made of or how they are made.³ The Patent Office has found that the vast majority of patents are for incremental improvements in known technology with innovation being “evolution” rather than “revolution”. The only way to get protection for an invention is to apply for a patent. Essentially, a patent gives the proprietor the right to stop someone else making a product having the features of the granted patent and therefore patents are generally regarded as legal weaponry rather than publications of information.

Application: An application for a patent can be made by or on behalf of the inventor of a new process or device and the grant of a patent will be made to the inventor or to any person who is entitled to it, for instance in the situation where the inventor has sold the idea before patenting it. Before an application is made for a patent there are some fundamental rules that have to be followed in almost all countries and if broken, even in ignorance of the consequences, the applicant may still get into an irretrievable situation. So, most importantly an applicant must not tell anyone about the idea before the patent application is filed. This may appear impractical as the idea does have to be assessed as to whether or not it is commercially sound, whether or not it can be manufactured and, if so, whether it can be sold for an acceptable price. However, somehow, the applicant has to find out these things without actually telling the person they’re speaking to what it is the applicant wants to produce. If it is felt necessary to share the idea with someone, the applicant must make certain that they know before being told the idea is being shared in confidence and that they must not disclose it to anyone else without the express permission of the applicant. Ideally the person to whom the idea is being shared should sign a confidentiality agreement. This is particularly important if the applicant is talking about a commercial contact to potential business colleague. The applicant can talk to a Chartered Patent Agent in confidence because all Chartered Patent Agents work under strict rules of confidentiality. The reason for confidentiality is that, to be patentable, an invention must be novel. An invention is not novel if it has been made available to the public (any individual) before the date of filing the patent application. If the applicant shows their idea to a potential manufacturer without a confidentiality agreement in place, the novelty of the idea is destroyed and the applicant is no longer entitled to a patent for it. This allows the manufacturer to make the product itself without any acknowledgement of the applicant’s contribution, financial or otherwise.

The next issue an applicant has to address for the idea to be patentable is an inventive step. This means that the invention must not be obvious to someone who is “skilled in the art” to which the invention relates. Patent agents advise whether something is inventive over what is already known by experience. The UK Patent Office will not give advice of this type as it does not provide this sort of function. To establish and decide whether an idea is inventive, it is necessary to find out what has been done before in the relevant field. Professional searchers

³ Source: UK Patent Office website <http://www.patent.gov.uk>.

can be instructed to look through earlier patents and patent applications but this will inevitably be expensive and will probably generate documents in several different languages, which then have to be deciphered. Other sources of information are the internet and the British Library.

What can be patented?: It should be assumed that every bright idea can be the subject of a patent. When application is made for a patent four essential criteria must be met: (1) it must be shown that the applicant has an invention, (2) the invention must not be excluded (see below), (3) it must be something new (not published, made public in the world anywhere previously, or be something that would be obvious to lots of people) and (4) it must be capable of industrial application. The term “industry” is meant here to be interpreted in its broadest sense as anything distinct from purely intellectual or aesthetic activity. It does not have to imply the use of a machine or the manufacture of an article.

Exclusions: Under the Patents Act 1977, certain items cannot be protected by patent. Among these are discoveries. Something you found out about but did not invent. This might include scientific theory or mathematical method, a mental process, artistic or aesthetic creation, playing a game, a computer program, a method of presentation of information or doing business.

Registration: An application for a patent can be made by or on behalf of the inventor of a new process or device and the granting of the patent will be made to the inventor or to any person who is entitled to it, in the instance where the inventor has sold the idea before patenting it. In the UK application is made to the Patent Office in London or Newport, Gwent, South Wales. The Patent Office is part of the Department of Trade and Industry (DTI) and it deals with the granting of patents, registered trade marks and registered designs. James Dyson remarks that applicants need either to put in a lot of hard work and research themselves, or need to pay a professional patent agent to do some of the work for them. Additionally, he says, using a patent agent does increase the cost of getting a patent quite dramatically, but you can then be sure of getting good advice and a well-drafted patent at the end of the day. On the robustness of patents Dyson says “if you are going to use your patent as a legal weapon, surely you’d like it to be as sharp as possible?”.⁴ The Dual CycloneTM was nearly never made due to patent and legal costs. Unlike a songwriter who owns the song he writes, an inventor has to pay substantial fees to renew his patents each year. During the development years when James Dyson had no income, this nearly bankrupted him. He risked everything, and fortunately the risk paid off.

Infringement: A UK patent will in general be infringed by making, using or selling something in the UK, which is subject to the patent without the owner’s consent. Patents are territorial rights; a UK patent will only give the holder rights within the UK and rights to stop others from importing the patented products into the UK. Hence a French competitor could legally make the invention in France unless there was a French patent. Additionally the goods produced in France could also legally be exported to any other country where there was no patent, though not of course to the UK. Infringement of a patent is a matter for the civil rather than the criminal law and actions for an injunction, damages or an account of profits are brought in the Patents Court which is part of the Chancery Division of the High Court. Once a patent is issued, the patentee must enforce the patent without aid of the DTI. An example of infringement was the dispute between Dyson and its rival Hoover. In 1999, Hoover tried to imitate a Dyson and James Dyson was forced to take the matter to court to protect his invention. Dyson’s patent relates

⁴ Source: Dyson Limited website <http://www.dyson.co.uk/invent/>.

to the basic principle of putting two cyclones of increasing efficiency into a vacuum cleaner to increase the overall separation efficiency of the cleaner. Any cleaner that incorporates the features of the patent will fall within the scope of the patent.

Inventions can relate to methods (like methods of manufacture or industrial processes) as well as to products or parts of products. James Dyson, who invented the bagless vacuum cleaner technology, told the press at the time of settlement: “when we discovered that Hoover had stolen one of our patents, we tried to settle the case to avoid a long and expensive court battle, but Hoover refused. So we were forced to defend our patent against Hoover’s infringement.” When interviewed he said “I hope it encourages inventors who have their ideas stolen by multinational companies to fight for their patent rights.”⁵ Dyson settled the dispute by accepting a £4m (\$6.3m) damages offer from Hoover. It followed a High Court ruling two years previously that Hoover’s Triple Vortex cleaner infringed Dyson’s patent for its Dual Cyclone™ vacuum cleaner. Dyson said the settlement was bigger than any previous court award in British patent case history. The company said it had offered Hoover the opportunity to settle the claim for just over £1 million before the case went to the High Court. Hoover took the case to the Court of Appeal but lost, additionally it was refused the right to appeal to the House of Lords.

Patents in the US

Patent legislation in the US is similar to that in the UK. The authority in the US for the granting of a property right to the inventor and issuing a patent for an invention is the United States Patent and Trademark Office (USPTO). Generally, in the US the term of a new patent is 20 years from the date on which the application for the patent was filed or, in special cases, from the date an earlier related application was filed, subject to the payment of maintenance fees. United States patent grants are effective only within the US, US territories, and US possessions. The right conferred by the patent grant is stated by the grant as being “the right to exclude others from making, using, offering for sale, or selling” the invention in the US or “importing” the invention into the US. What is granted is not the right to make, use, offer for sale, sell or import, but the right to exclude others from making, using, offering for sale, selling or importing the invention. The patent law specifies the subject matter for which a patent may be obtained and the conditions for patentability. The law establishes the USPTO to administer the law relating to the granting of patents and contains various other provisions relating to patents. The USPTO website states that the Constitution of the US gives Congress the power to enact laws relating to patents, in Article I, section 8, which reads “Congress shall have power [. . .] to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.” Under this power Congress has from time to time enacted various laws relating to patents.

The first patent law was enacted in 1790. The patent laws underwent a general revision which was enacted on 19 July 1952, and which came into effect on 1 January 1953. It is codified in Title 35, United States Code. Additionally, on 29 November 1999, Congress enacted the American Inventors Protection Act of 1999 (AIPA), which further revised the patent laws.⁶ Infringement disputes in the US can involve considerable sums of money. In April 2004 software company Microsoft agreed to pay \$440m (£240m) to California-based InterTrust Technologies (a maker of software to protect online delivery and payment for films and music) to settle a legal row

⁵ BBC Thursday, 3 October 2002, UK.

⁶ Source: The United States Patent and Trademark Office (USPTO) website <http://www.uspto.gov/>.

over its use of anti-piracy patents.⁷ InterTrust, which is part-owned by Sony and Philips, sued Microsoft in 2001 after licensing talks collapsed. The company accused Microsoft's new Windows XP program of infringing its patents and demanded damages that, at the time, were expected to run into billions of dollars. The agreement came one week after Microsoft paid \$1.6bn to a rival, Sun Microsystems, to end another patents battle.

21.7.2 Copyright

Copyright is a form of protection provided to the authors of "original works of authorship" including original literary works (e.g. novels, instruction manuals, computer programs, lyrics for songs, articles in newspapers, some types of databases), original dramatic, musical and artistic works (e.g. paintings, engravings, photographs, sculptures, collages, works of architecture, technical drawings, diagrams, maps, logos); published editions of works, sound recordings (which may be recordings on any medium), films, including videos; and broadcasts. The 1988 Act generally gives the owner of copyright the exclusive right to reproduce the copyrighted work, to prepare derivative works, to distribute copies of the copyrighted work, to perform the copyrighted work publicly, or to display the copyrighted work publicly. The copyright protects the form of expression rather than the subject matter of the writing. Copyright does not protect ideas. For example, a description of a machine could be copyrighted, but this would only prevent others from copying the description; it would not prevent others from writing a description of their own or from making and using the machine. The Act does not require the owner of a copyright to register it or to follow any formalities with particular regard to it.

Ownership and duration: The author of the work is the owner of the copyright. However, there are circumstances where for instance copyright as an issue features in the contract between an employer and a management consultant. Copyright of work carried out by the employee on behalf of the employer normally resides with the employer. The relevant rules on duration are now contained in statutory instrument SI 1995/3297 entitled the Duration of Copyright and Rights in Performance Regulations 1995, passed in order to harmonise UK law with that of the European Union. The Regulations increase the basic term of copyright in literary, dramatic, musical and artistic works. This raises the former provision of the present life of the author plus 50 years after his death to life plus 70 years.

Infringement: The person infringing the copyright will usually have copied from the work and an action can be brought for an injunction and/or damages or for a share of the profits made from the wrongful use of copyrighted work. There are no statutory defences to copyright infringement. However, there are common law defences. The basis of common law defence and case law is beyond the scope of this book. Under the Copyright, Designs and Patents Act 1988, authors are given certain moral rights which exist quite independently of copyright. It provides protection alongside a copyright and is useful for an author who has sold the copyright to someone else. The right of paternity includes the right to be identified as the author and must be claimed by the author. The right of integrity enables the author to object to changes to his or her work by way of additions, deletions, alterations or adaptation which amount to what is termed mutilation or distortion of the work. The right of attribution gives a person (such as an author) the right to prevent a work which he has not produced being attributed to him/her. An author whose moral rights have been infringed is entitled to an injunction and damages.

⁷ BBC News report (2004) "Microsoft Settles Patents Case", Monday, 12 April 2004, <http://news.bbc.co.uk>.

21.7.3 Designs

A design right works similarly to a patent but involves the look, colouring, shape, texture and/or materials associated with a product. Hence a design refers only to the features of shape or pattern applied to an article by an industrial process which is judged solely by looking at the article such as the shape of a Coca Cola bottle. It is now possible to register the Coca Cola bottle as a trade mark under the Trade Marks Act 1994.

Registration: Designs may be registered at the Patent Office (Designs Registry) under the Registered Designs Act 1949 (as amended by the 1988 Act). Registration gives the owner of the design protection for five years and this can be extended for four further periods of five years on payment of four further fees every five years, making 25 years in all.

Infringement: The registered design owner's rights for infringement are to sue the person responsible for damages and/or an injunction or an account of profits made from the wrongful use of the design or an order for the delivery up of the infringing copies.

21.8 EMPLOYMENT LAW

Businesses must comply with employment law in the employment of staff. Failure to do so can lead to prosecution. The ordinary principles of the law of contract apply. So in a contract of employment there must be an offer and an acceptance, which is in effect the agreement. There must also be the intention to create legal relations, payment terms, together with proper consent by the parties. That is, there is no mistake, misinterpretation, duress or undue influence. In addition the contract must not be illegal. A contract does not require any written formalities and can be made orally. However, certain written particulars of it are required to be given to the employee by the Employment Rights Act 1996. These particulars must be given to all employees within two months of starting work unless the employee has entered into a written contract with the employer containing all the relevant terms. The particulars are required to contain minimum information, with which we are all familiar. Additionally an employer must prepare and revise when necessary a statement of his policy in regard to the health and safety of his employees and arrangements for carrying out the policy in accordance with the Health and Safety at Work Act 1974. An employer has other duties in terms of remuneration, holiday pay, sick pay, time for antenatal care, maternity leave (under certain conditions), dismissal procedures and other obligations under the prevailing legislation. Employment law is now very extensive and made all the more complex by the European Union. Businesses are at risk if employment law is not understood and adhered to.

21.9 CONTRACTS

This section is concerned with the legal framework governing the supply of goods and services.

21.9.1 Essentials of a valid contract

The essential ingredients of a contract are:

- *Legality:* The purpose of the agreement must not be illegal or contrary to public policy.
- *Agreement:* An agreement is formed when one party accepts the offer of another.

- *Consideration*: The parties must show that their agreement is part of a bargain; each side must promise to give or do something for the other.
- *Intention*: The parties must have intended their agreement to have legal consequences.
- *Capacity*: The parties must be legally capable of entering into a contract.
- *Genuineness of consent*: The agreement must have been freely entered into.
- *Formalities*: In some cases, certain formalities must be observed.

A contract which possesses all of these requirements is said to be valid. If one of the parties fails to fulfil his/her promises, he/she may be sued for breach of contract. The absence of an essential element will render the contract either void, voidable or unenforceable.

21.9.2 Types of contract

Contracts may be divided into two broad categories. Speciality contracts and simple contracts. Specialty contracts require that the signature of the person making the deed must be witnessed and attested. It must be clear on the face of the document that it is intended to be a deed. Simple contracts are not deeds or informal contracts and may be made in any way – orally, in writing or they may be implied from conduct.

21.10 CRIMINAL LIABILITY IN BUSINESS

Suppliers are subject to extensive criminal controls over their activities. Criminal law affects the supplier of goods and services, with regard to:

- Misdescriptions of goods and services
- Misleading price indications about goods and services
- Safety of consumer goods
- Safety and quality of food

21.10.1 Misdescriptions of goods and services

The Trade Descriptions Act 1968 (TDA) prohibits the use of certain false trade descriptions by a person acting in the course of a trade or business. The main offences created by a TDA are:

- Applying a false trade description to any goods or supplying goods to which a false trade description is applied.
- Knowingly or recklessly making a false statement in respect of the provision of services, accommodation or facilities.

False trade description of goods

- *Strict liability*: Prosecution must normally establish two essential requirements, first, a prohibited act has been committed (*actus reus*) and second, the act was intentional and hence the person was of guilty mind (*mens rea*). However, some offences do not require *mens rea* for a prosecution. These are known as crimes of strict liability.
- *In the course of trade or business*: An offence can only be committed by a person acting in the course of a trade or business.

- *False trade description*: The Act defines a trade description as “an indication, direct or indirect, and by whatever means given” which includes such matters as quantity, size, gauge, method of manufacture and composition.
- *Applying a false trade description*: The ways in which a description may be applied to any goods is set out in the Act and includes labels, packaging, oral statements and advertisements.
- *Supplying and offering to supply goods to which a false trade description is applied*: To avoid the problem that the display of goods in a shop window or on a supermarket shelf is not an offer to sell in the contractual sense the Act provides that “a person exposing goods for supply or having goods in possession for supply shall be deemed to offer to supply them”.
- *Disclaimers*: Case law has provided “for a disclaimer to be effective it must be as bold, precise and compelling as the trade description itself and must effectively be brought to the attention of any person to whom the goods may be supplied [...]”.

False trade description of services

The TDA states that it is an offence for any person in the course of any trade or business to make a statement which he knows to be false or recklessly to make a statement which is false with regard to the following issues: the provision of any services, accommodation or facilities; the nature of any services; the time at which, manner in which or persons by whom such services etc. are provided; the examination, approval or evaluation by any person of any such services etc., and the location or amenities of any accommodation so provided.

The following points should be noted about the offence of false trade description of services:

- *Requirement of mens rea*: This subject is covered by two sections of the Act. First, the prosecution must show that the defendant made the statement knowing it to be false. Second, the prosecution must show that the defendant made the statement recklessly.
- *In the course of any trade or business*: As set out in the Act the offence cannot be committed by a private individual.
- *Statements*: The Act regards as significant statements about existing facts, but not statements which effectively are promises about the future.
- *Services, accommodation and facilities*: The Act does not define these terms and hence interpretation can only be accomplished by studying case law. Services may be dry cleaning, accommodation might be a hotel and facilities might be a car park.

21.10.2 Misleading price indications

Controls over false and misleading statements regarding prices are now contained in the Consumer Protection Act 1987 (as opposed to the Trade Descriptions Act 1968). Section 20(1) of the Act states that a person will be regarded as guilty of an offence, if in the course of any business of his, he gives (by any means whatsoever) to any consumers an indication which is misleading as to the price at which any goods, services, accommodation or facilities are available.

The following points should be noted about the offence of misleading price indicators:

- *Consumers*: The Act defines “consumers” as anyone who might want the goods, services, accommodation or facilities other than for business purposes.
- *Price*: The definition of “price” contained in the Act covers the total payable as well as any method of determining the total amount.

- *Misleading*: The Act sets out a list of circumstances in which the prices or the methods of determining the price will be considered misleading.
- *Services or facilities*: A list of items included in the definition provided by the Act is as follows: credit, banking or insurance services; the purchase or sale of foreign currency; the supply of electricity; off-street car parking, and holiday caravan parks. Services and facilities specifically excluded are those provided by an employee to his/her employer, by an authorised person or appointed representative under the Financial Services Act, and facilities for a residential caravan park.
- *Accommodation*: Part III of the CPA applies to short-term accommodation such as hotels and holiday flats and new freehold homes for sale and homes on lease for more than 21 years. Homes for rent are not covered. Fees charged by estate agents are also covered.
- *In the course of any business of his*: An offence can only be committed by a person acting in the course of a business of his. Hence this wording limits the scope of the offence to the owners of a business. Employees cannot be made liable for misleading price indications, even when acting in the course of their employment.

21.10.3 Product safety

The legal framework for dealing with the problem of unsafe products is contained in the General Product Safety Regulations 1994 and Part II of the Consumer Protection Act 1987. The General Product Safety Regulations 1994 implement the provisions of the EC Directive on General Product Safety. They impose requirements concerning the safety of products intended for consumers or likely to be used by consumers where such products are placed on the market by producers or supplied by distributors. The following points should be noted.

- *Scope of the Regulations*: The Regulations apply to products intended or likely to be used for consumer use which have been supplied in the course of a commercial activity. A consumer is a person who is not acting in the course of a commercial activity. A commercial activity is defined as any business or trade. The Regulations apply whether the products are new, used or reconditioned. Products used exclusively in the context of a commercial activity, even if for or by a consumer, are not the subject of the Regulations. The Regulations do not apply to the following types of products: second-hand products which are antiques; products supplied for repair or reconditioning before use; products that are subject to specific provisions of EC law covering all aspects of their safety; and products that are subject to specific provisions of EC law which cover an aspect of safety.
- *General safety requirement*: The Regulations provide that a producer may not place a product on the market unless it is a safe product. It is an offence to fail to comply with the general safety requirement.
- *Safe product*: The Regulations set out what is meant by a “safe product”. A product will be safe if under normal or reasonably foreseeable conditions of use (including duration) there is no risk or the risk has been reduced to a minimum. Any risk must be compatible with the product’s use, considered acceptable and consistent with a high level of health and safety protection.
- *Producer*: A “producer” is defined by the Regulations as a manufacturer established in the EC; where the manufacturer is not established in the EC, his representative or the importer of the product; or other professionals in the supply chain but only to the extent that their activities might affect the safety of the product.

- *Information requirements:* A producer is required by the Regulations to provide consumers with information so that they can assess inherent risks and take precautions. The duty only arises where the risks are not immediately apparent without adequate warnings.
- *Duty of distributors:* A distributor must act with due care to help producers comply with the general safety requirement. In particular, a distributor will commit an offence if he supplies dangerous products.
- *Defence of due diligence:* It is a defence for a person accused of an offence under the Regulations to show that he took all reasonable steps and exercised all due diligence to avoid committing the offence.
- *By-pass provision:* The Regulations provide a by-pass provision to enable the prosecution of the person, in the course of a commercial activity of his, whose act or default causes another to commit an offence.
- *Enforcement of penalties:* The Regulations are enforced by the weights and measures authorities in Great Britain except in relation to food, in which case enforcement is the responsibility of food authorities.

21.11 COMPUTER MISUSE

Businesses are protected against computer misuse to a degree, in that legislation such as the Computer Misuse Act 1990 which came into force on 29 August 1990, acts as a deterrent, but to bring a prosecution is sometimes like closing the stable door after the horse has bolted. The damage to customer loyalty, reputation, relations with business partners or income is already done. Prosecution provides little solace. Additionally computer misuse is now a global problem with problems of “hacking” or virus infections being initiated beyond our shores and hence beyond our laws.

21.11.1 Unauthorised access to computer material

It is an offence to knowingly cause a computer to perform a function with the intent to secure unauthorised access to programs or data held in a computer. This basic offence is designed to criminalise the activities of both external “hackers” who obtain access to computers using the public telecommunications system and internal business employees who knowingly exceed the limits of their authority to use a computer (such as a disgruntled employee wishing to harm his/her employer or an employee wishing to obtain information which would be useful when joining a new employer). The offence is triable summarily and is punishable by a maximum of six months’ imprisonment or a fine of £5000. A fine of this level is trivial when considering the level of harm that can be inflicted on a business.

21.11.2 Unauthorised access with intent to commit or facilitate commission of further offences

It is an offence triable either by magistrates or in the Crown Court to commit an unauthorised access offence with the intent to commit or facilitate the commission of any serious offence. The sentence for which is fixed by law or where the maximum sentence could be five years or more. These serious crimes would include theft and blackmail. This offence would cover the situation where a “hacker” obtains unauthorised access to a computer system with the intent

of hijacking funds in the course of an electronic funds transfer. The maximum penalty for this offence if convicted on indictment is five years' imprisonment or an unlimited fine.

21.11.3 Unauthorised modification of computer material

It is an offence to intentionally cause the unauthorised modification of the contents of any computer with the intent to impair a computer's operation or to prevent or hinder access to any program or data held in a computer or impair the operation of such a program or the reliability of data. This offence is designed to cover interference with computer programs and data such as the deletion or alteration of material or the introduction of computer viruses. The offence is triable either by magistrates or in the Crown Court where the maximum penalty is five years' imprisonment and an unlimited fine.

21.12 SUMMARY

This chapter examined some of the sources of legal risk that a business may be exposed to. It has not attempted to be an exhaustive study, but has strived to look at those issues that are common to most businesses. It examined the division between public and private law and the headings under which any action might be brought. The chapter looked at aspects of the Companies Act together with administrative issues that can expose businesses to litigation. With such a focus on corporate governance in recent years there has been renewed attention to the accuracy of listing particulars and the information contained in annual reviews. It examined the aspects of intellectual property in terms of patents, copyright and designs. While patents and copyright in particular can be useful protections to secure competitive advantage, if sometimes for only a limited period, they can also be a source of risk if infringed. Additionally businesses must adequately address employment law, contracts and criminal liability. Now more relevant than ever, due to the ubiquity of computers, is the management of computers, the information they hold and compliance with the Computer Misuse Act 1990.

Nearly all businesses that venture overseas face political risk in one form or another. The political environment of overseas markets will always play a key role in shaping the threats and opportunities of businesses seeking geographical expansion. Typically, political risk for a business has involved a single government. However, that is changing. While businesses may seek to expand into a single nation state (e.g. France) this may also entail them operating within a supra-national body, which comprises collections of nation states (e.g. the European Union). Decisions within both types of political entity have a major impact on the prospects of businesses achieving the performance targets they have set themselves. In addition, political factors that may impact on the business-operating environment may well alter according to the “colour” of the incumbent government. While it may be a sweeping generalisation, it may be argued that right-wing parties (Conservative in the UK, Republicans in the USA, for example) traditionally favour free enterprise and market forces. Left-wing parties (Labour in the UK and Democrats in the USA) traditionally favour tighter control over businesses and some government intervention to provide essential services for those that cannot afford them. However, the political risk profile of an individual state may vary considerably over time. An extreme example is the turn of events in Iran in the late 1970s when the Shah was overthrown in 1979 during the Islamic revolution. The Iranian Government seized the assets of western countries, which resulted in the loss of an estimated \$1 billion in corporate assets (Hunt 2001). In retaliation the US froze Iranian assets under its jurisdiction. According to some reports at the time, around 75% of multinationals lost all but a small percentage of their Iran-based assets. Anti-western sentiment was also commonplace in many other areas of the developing world. This chapter examines the political context of business, reviews the various types of political risk and explores some of the techniques that might be used to mitigate them. The structure of the chapter is illustrated in Figure 22.1. The following chapter examines market risk.

22.1 DEFINITION OF POLITICAL RISK

What is political risk? The definition adopted here is that proposed by Zonis and Wilkin: political risk is the uncertainty that stems, in whole or in part, from the exercise of power by governmental actors and the actions of non-governmental groups (Zonis and Wilkin 2001). This definition applies to both domestic and international markets, although it is more commonly associated with overseas exposure and in particular developing countries. Political risk can also be incurred through government inaction or direct action (of both national and local government). Inaction could be failure to issue permits as required, or government failure to enforce local legal provisions. Examples of direct action include the following: contract frustration, currency inconvertibility, tax laws, tariffs, expropriation of assets, or restriction in the repatriation of profits. The definition embraces sources of political risk such as political instability, politicised government policy and political violence. Political risk may also stem from increased credit risk if the government changes policies to make it difficult for the company to pay creditors.

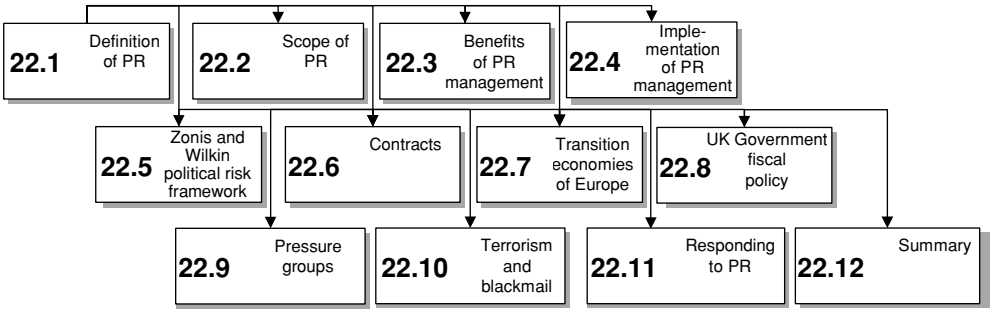


Figure 22.1 Structure of Chapter 22

22.2 SCOPE OF POLITICAL RISK

There are two broad categories of political risk often identified, called “macropolitical” and “micropolitical” (Griffiths and Wall 2005). They might also be called country-specific and firm-specific political risks, as described below.

22.2.1 Macropolitical risks

These potentially affect all businesses in a country. Threats may arise from dramatic actions such as terrorism, civil war, a coup d’état or military insurgency. Such risks may result in governments seizing the assets of the firm without compensation. However, the more common macropolitical risk specific to a country is the potential threat of adverse economic circumstances, leaving a business unsure of the security of a planned future investment, or if a project has commenced, concern over the outturn bottom-line performance. An example of an adverse threat is economic recession with less aggregate demand for a broad range of products. Similarly higher general levels of inflation or taxation might adversely affect all businesses, as might escalating crime, labour disputes or the onset of a national recession.

22.2.2 Micropolitical risks

These only affect specific firms, industries or types of venture. Such risks may take the form of new regulations or, say, taxation imposed on specific types of business in the country. However, this picture is changing. As Kobrin (1997) points out “the ‘new’ political risk is likely to involve multiple companies and multiple governments where business partners are caught between three, four or five governments with different policy objectives and economic philosophies”. In addition he describes the emergence of an asymmetry between international business and international politics. He explains the existence of this asymmetry arises from the emerging mode of business organisation and the nature of politics. While politics is still organised geographically in terms of territory and borders, business organisation is not confined by national boundaries. Companies such as IBM, Siemens and Toshiba have formed an alliance to pool knowledge to survive in a market place where competition is fierce and technologies are developing rapidly. As a consequence, organisation centres, borders and hierarchies lose relevance. Without the headquarter/subsidiary hierarchy and clarity over the nationality of the business (is it American,

German or Japanese?), what government can impose what controls? How is taxation resolved? If such alliances become commonplace, political risk in the future will be more complex.

Included in Box 22.1 are examples of both macro-and micropolitical risk. It is not an exhaustive list but does provide an indication of some of the common sources of risk. Each geographical region will have its own unique risk profile.

Box 22.1 Political risk

Types of macro- and micropolitical risk and their impact on businesses:

| | Government | Impact on businesses |
|-----------------------|--|---|
| Macropolitical | <ul style="list-style-type: none"> • Recession • Inflation or hyperinflation • Military insurgence, coup d'état, civil wars or other politically motivated violence • Campaigns against foreign goods • Product contamination • Bureaucratic incompetence • Change in government resulting in new fiscal policies • Corruption • Government policies on credit payments • Increased taxation • New or revised/more stringent legislation • Expropriation • Confiscation • Nationalisation of industry or project • Terrorism or kidnappings • Currency devaluations/depreciation | <ul style="list-style-type: none"> • Loss of sales • Higher operating costs • Destruction of property • Lost sales • Disruption to production • Increased security costs • Lower productivity • Difficult staff retention • Loss of sales • Reduction in market share • Increased public relations costs to recapture the market • Loss of sales • Erosion of reputation • Increased operating costs • Increased taxation • Increased operating costs • Difficulty in payment of creditors • Lower after-tax profits • Increased costs of production • Protracted approvals • Delays in getting product to market • Loss of sales • Loss of sales and future profits • Economic loss • Disrupted production • Increased managerial costs • Increased security costs • Lower productivity • Reduced valuation of repatriated earnings |

| | | |
|-----------------------|--|--|
| | <ul style="list-style-type: none">• Currency revaluation/appreciation• Restriction on repatriation of profits• Breach of contract/contract frustration | <ul style="list-style-type: none">• Less competitive in overseas markets and in competing against imports in home market• Loss of profit• Lower productivity• Loss of sales |
| Micropolitical | <ul style="list-style-type: none">• Industry-specific taxation• Tariffs and quotas• Politically motivated violence (e.g. against petrochemical or pharmaceutical industry) | <ul style="list-style-type: none">• Lower after-tax profits• Volumes• Disruption to production• Disruption to research and development• Higher security costs• Staff retention difficulties |

Based on: Griffiths (2005).

22.3 BENEFITS OF POLITICAL RISK MANAGEMENT

Political risk management affords a business benefits as it:

- Provides a proactive systematic and methodical approach to the evaluation of alternative investment opportunities based on analysis of different geographical markets set in different political contexts.
- Provides another tool with which to examine return on investment.
- Supports more rational decision taking between competing choices.
- Produces concrete mitigation actions to reduce investment exposure.
- Contributes to a more holistic approach to risk management.

22.4 IMPLEMENTATION OF POLITICAL RISK MANAGEMENT

The development of a sound system of political risk management will depend on a number of issues such as:

- Developing intelligence on the market the business wishes to penetrate.
- Having a clear understanding of the historical and social environment of the country in which investment is planned.
- Understanding the support that can be obtained from UK government agencies.
- Developing an understanding of the sources of political risk.
- Building political risk management capabilities.

22.5 ZONIS AND WILKIN POLITICAL RISK FRAMEWORK

This section describes the political risk framework proposed by Zonis and Wilkin (2001). The authors state that the key to developing a proactive, broadly focused political risk management strategy is to adopt a comprehensive and systematic view of *factors driving political risks*. This

approach it is considered will allow a business to identify the exact position of problems, assess where improvements are easiest to achieve and lay out an action plan. They go on to say that the factors that drive political risk can be broken down into three basic areas: (1) external drivers such as political instability and poor public policy, (2) interaction drivers based on the relationships between the company and external actors and (3) internal drivers such as the quality of the company's political risk management process. The drivers of political risk as described by the authors are included in Box 22.2. Zonis and Wilkin advise that a company can use a framework such as the one that they have described to identify the vital drivers of the political risks it faces. Deployment of such a framework the authors consider can be the responsibility of the company's political risk or government relations department or of a management committee convened by a top executive. More importantly Zonis and Wilkin quite rightly express the view that having identified political risks (which is obviously an important part of the risk management jigsaw) managers should turn their attention to building risk management capabilities. These capabilities it is thought should include risk management policies, business processes, organisation, human capital, methodologies, reports, systems and data. The authors clearly consider that political risk management can affect business performance: "A company with (a) superb capability in political risk management can defuse risks before they escalate. A company with little capability can turn a low risk investment into a high risk one (as when it provokes regulators to intervene)."

Box 22.2 Zonis and Wilkin political risk framework

External drivers

External drivers of political risk can be subdivided into several categories. The classic drivers are incidents of political instability (such as riots and coups) and poor public policy (such as hyperinflation and currency crises). These types of political risk attract the headlines (as in Indonesia, Russia and Brazil) and often dominate the attention of the political risk managers. However, an external driver of political risk that is frequently overlooked is a weak institutional framework. For direct investors, drivers in this area (such as corrupt regulatory agencies and ineffective legal systems) can be more critical than headline generating political and economic developments. Weak political institutions pose the threat of a "death of a thousand cuts" such as that suffered by the power plant in India. [In the early 1990s several US energy companies entered India. The country suffered no major economic crisis or political instability, but by 2000, a majority of the power generation projects in the country had been abandoned. One US company was forced to obtain 150 bureaucratic clearances for its project and the state government renegotiated its power-purchase agreement four times. In addition, politicians took the company to court on charges of corruption. The company spent some \$27 million in legal and administrative fees before ultimately pulling out, after seven years of delay]. Weak political institutions include such hazards as failing legal systems, biased regulatory systems and the inability of the government to provide expected services (such as infrastructure and services). In most cases the company cannot influence these drivers of risk (it cannot make the host country more stable, or alter its basic macro-economic policy decisions). Hence the company needs to focus on assessing these risks accurately and managing their impacts (for instance by buying political risk insurance).

Interaction drivers

Interaction drivers can be split into categories based on the relationship involved. Companies typically have many relationships that influence political risk levels. The most common include relationships with home-country and host-country governments, with local governments in the host country and with regulators. If these relationships turn sour, political risk levels will increase.

Other important relationships include those with local communities and the labour force. Community demands can lead to government intervention. [A Canada-based energy company decided to undertake a major expansion of a power project to produce new energy supplies for Canada and for export to the state of New York in the US. However, the project soon ran foul of both Indian tribes and environmentalist non-governmental organisations (NGOs). Both these groups waged a sophisticated media campaign against the project. The company attempted to respond with a public relations campaign of its own, but was unsuccessful. Eventually the New York Power Authority pulled out, depriving the project of 30% of its expected revenues leaving the Canadian company with substantial sunk costs on its books.]

Unions: One of the most common reasons for unwanted host government intervention is labour issues. Several academic studies have found that companies with well-organised large labour forces experience higher levels of political risk. Labour unions can be extremely effective in seeking government action.

NGOs: As a result of the internet, information about a company's far-flung investment activities can be disseminated rapidly and easily, and multiple NGOs can effectively co-ordinate their action. When NGOs are involved a company's Value at Risk in an investment project exceeds the project itself, since NGOs can affect a company's global reputation as well as consumer behaviour.

Shareholders: When shareholders obtain information about foreign political events from the media, they are likely to respond to negative events by hammering the company's share price. It is therefore critical for the company to present its political risk management strategy to shareholders in a compelling fashion, before political risk crises hit and to follow this with status updates when problems do occur.

Interaction based drivers of risk differ from external drivers in that the quality of the company's relationship with external drivers strongly affects risk levels. Hence the company can influence both the probability and the impacts of these political risks.

Internal drivers

Organisation: Problems in this area can have profound effects on the company's ability to deal successfully with political risks. For instance there is often difficulty aligning management incentives with the political risk management goals of the company as a whole.

Information: Information problems have been difficult to overcome and one typical problem is that internally produced risk assessments were too lengthy or abstract to be useful. They were not company specific and even when correct managers did not believe them and failed to act on their recommendations.

Policy: Policy related risks include problems with managers failing to obey risk management policies or problems with the absence or incompleteness of these policies.

Techniques: Risk relating to the use of specific risk management techniques arise when companies select the wrong type of risk management strategy (as when they purchase political risk insurance coverage that does not completely cover their exposure).

Human capital risks: These include problems that arise when staff are not qualified to deal with political problems (such as when project managers attempt to avoid dealing with the host government, “stick to business” and fail to cultivate a positive relationship).

22.6 CONTRACTS

Companies who contract with either foreign governments or private entities located abroad, for either the purchase or supply of goods or services, often face a number of political risks that threaten the profitability of the transaction. Events to forestall the fulfilment of a contract can occur before or after shipment or delivery of the contracted goods, and before, during, or after completion of the contracted services. Included below are the more common types of prevailing contract risk events.

Contract frustration prior to the shipment or delivery of goods:

- Outbreak of a new war or civil war preventing the contract from being completed.
- Unilateral contract cancellation by the other party to the agreement, where the party is a government entity.
- Cancellation of legally granted import or export licences, or implementation of laws preventing import or export of goods.

Contract frustration after shipment or delivery of goods:

- Failure of the government foreign exchange authority to transfer the transaction amount in the contract currency to the exporter, although the private local buyer has deposited the agreed-upon payment in equivalent local currency with the foreign exchange authority.
- Payment default by a buyer that is a government entity.
- Where contract disputes have arisen, a government buyer or bank do not honour an arbitration judgement in favour of the exporter in accordance with the arbitration procedure outlined in the transaction contract.

22.7 TRANSITION ECONOMIES OF EUROPE

While the appeal to invest in transition economies may be strong due to the emerging markets, such investments are prone to considerable political risk. This exposure exists despite the fact that transition economies seek to make foreign direct investment (FDI) from businesses from advanced market economies attractive. Their motivation stems from the desire to secure the transfer of both technology and management techniques, as well as capital. Japanese FDI into Britain for instance brought with it management techniques such as just-in-time (JIT) which spread widely through UK businesses, improving efficiency. To appreciate the political risk it is necessary to understand both the starting point and the evolutionary path that the transition economies are travelling. Since 1989 some 28 independent states of Central and Eastern Europe (CEE) and the Commonwealth of Independent States (CIS) have embarked on a transition from “Marx to the market”. While these states differ markedly in many economic respects (such as GDP per capita, population size and structure of the economy) they all share a legacy of

a planned economic system. For Russia, for instance, the planning process determined what was produced, how production was organised and the distribution of production. The results of the transition to the market for the different states has been mixed. This has been due in no small measure to the enormity and complexity of the task of turning a centrally planned economy (CPE) into a market economy. The key characteristics of centrally planned economies (CPEs) were self-sufficiency (in order to be independent of the capitalist economies), collective public ownership with economic decisions being made centrally by the state, production by State Owned Enterprises (SOEs), coordination of the activities of SOEs through input/output analysis (raw material sources and output), limited international trade (which was secondary to domestic production) and the banking system.

While communism guaranteed full employment and a reasonable standard of living for its citizens there were a number of problems with the CPE. There were no rewards for managers in SOEs to produce output efficiencies. The planners required resource requirement information from the managers of SOEs. The SOEs would put in bids for more inputs than they required and bargain for production targets which were easier to achieve than proposed by the planners. Incentives and penalties were weakly linked to performance and tended to encourage just satisfying output targets. Planned targets were expressed in volume or weight, with little reference to quality. Workers were not individually incentivised, they were often given bonuses relating to total production. This led to workers obtaining a “free ride”. They obtained their bonus without even achieving the basic output.

In a market economy high prices indicate a shortage, which is addressed by competition. In a planned economy scarce resources are indicated by queues. In summary planned economies suffered from numerous problems and inefficiencies such as chronic shortages of consumer goods, repressed inflation due to underpricing of scarce goods and services, hidden unemployment due to overmanning and the guarantee of full employment and soft budget constraints caused by stringent financial control of SOEs. The transition process led to a rapidly declining domestic market, a significant increase in imports, inflation, unemployment and declining government expenditure due to a dramatic fall in tax revenues. It is against this backdrop that western businesses have invested in business development in emerging markets. The key issues are uncertainty over fiscal policies, worker mentality, productivity rates, instability in the price of inputs, inflation, poor infrastructure and low domestic demand.

22.8 UK GOVERNMENT FISCAL POLICY

The UK Government influences the economy to accomplish its four main aims: full employment, favourable balance of payments, stable prices and economic growth. Government strives to accomplish these aims by affecting total demand in the economy through the implementation of policies. Fiscal policy relates to changes in taxation and government spending. Taxes can be direct (taken directly from income, e.g. income tax or corporation tax), indirect (placed on goods and services such as VAT) and progressive (such as taking a higher proportion of income as income rises). Government spending includes social security, health, education, defence, public order and safety, housing and community amenities, transportation and communication.

22.9 PRESSURE GROUPS

Business development overseas may be exposed to pressure groups. These are organised groups of people with similar interests who attempt to influence others, notably governments and large businesses. They range in size from international organisations such as Friends of the Earth,

Greenpeace and Amnesty International to small community groups concerned only with local matters who will exist just for the life of one particular issue. A pressure group's success largely depends on the level of financial, public and political support, as well as on the organisational ability of the group itself. Depending on the planned business investment in terms of whether it is unique or following a well-worn path, reaction from the more well-known pressure groups can be predicted to a degree. However, it is the groups that form just to oppose or restrict a single development that can be harder or impossible to predict.

22.10 TERRORISM AND BLACKMAIL

Food and drink, cosmetics, pharmaceuticals and tobacco products are susceptible to product contamination, both accidental and by deliberate interference through malice or for financial or political gain. Such incidents are increasingly common and when they occur they attract media attention that can have a disastrous impact on the product or brand name. Companies can incur significant costs: from recalling and replacing the damaged product; through lost sales; from advertising costs to regain the public's confidence; and from rehabilitating the brand name.

Mobile and permanent investments located in emerging markets are increasingly vulnerable to terrorist attacks, war or other forms of politically motivated violence, resulting in physical damage to these assets. Outbreaks of military conflict are occurring on a more frequent basis, not only in less developed countries but also in industrialised nations, such as the unrest in former Yugoslavia. Along with more prevalent incidents of war and civil war, acts of terrorism are also on the rise, with targets more often on transportation systems or in the corporate sector than in military or diplomatic locations.

22.11 RESPONDING TO POLITICAL RISK

A common criticism of political risk analysis is that it usually takes place too late when projects are already under way (Griffiths and Wall 2005). This is reinforced by Zonis and Wilkin, who cite a common problem of businesses taking a reactive approach to political risk (Zonis and Wilkin 2001). They go on to say that such businesses usually end up with a political risk management strategy that emphasises damage control. Such strategies are unnecessarily expensive. Political risks are generally far easier to handle before they evolve into full-blown crises. Companies that rely on damage control strategies post some event are driven to employ experienced management consultants, solicitors and ex-diplomats to limit losses and protect shareholder value. However, such expenditure may be fruitless as once political decisions are made they are hard to reverse as credibility and public confidence are at stake. In addition there are no standard techniques such as control charts that can be used to minimise political risk (Eppen 2001). Management time and effort needs to be directed towards political risk at the initiation stage of projects, before taking the step to invest overseas. Approaches that businesses may use to ensure that this risk is minimised and appropriately assigned include the following:

- Undertaking proper planning and due diligence. Although there are a number of ways to protect a business against political risks, too many businesses begin operations in an unfamiliar country without having taken the time and devoting the resources necessary to ensure a better-than-average chance of success. Developing solid relations with relevant governing authorities is the preferred approach, but this may not always be possible.

- Investing in projects or entering into contracts where the host government has adopted policies that encourage private sector involvement, particularly where this involvement will provide risk mitigation and promote risk transfer. Longstanding policies provide comfort in that once introduced such measures are less likely to be repealed.
- Investing in projects where the host government has clear and unambiguous statements of government support for the type of investment being made particularly if linked to some form of guarantee. Deep (2001) cites the example where for the \$616 million Liabin B coal-fired plant, the first Chinese infrastructure project to be financed entirely with foreign capital, the concession agreement provided sweeping government guarantees. This included clauses that entitled the project to compensatory payments in case of any significant changes in law, including tax and environmental regulations that might prevent the company from fulfilling its obligations to lenders. Any statements of government support will, ideally, contain within it indications of the underlying benefits that the government wishes to accrue from supporting these types of investment. This will help potential investors ascertain the degree to which individual schemes are compatible with national programmes or aspirations.
- Obtaining insurance against political risk. National export credit agencies (ECAs) provide this to their exporters within limits. In the UK this is the Export Credits Guarantee Department.¹ Political risk insurance (PRI) can be obtained on the private market, from such multinational companies as Marsh & McLennan Companies Inc., the Aon Corporation and Willis. There are now more PRI providers with greater capabilities than ever before. Whether a business wants to take out general coverage (against expropriation, currency inconvertibility, or political violence) or create coverage tailored to specific circumstances, it is highly probable that one or more of the private-sector PRI providers can meet a business's needs. Businesses must remember to pursue coverage before a problem occurs. After it happens, coverage will be difficult to obtain. More extensive cover can be obtained from multilateral development agencies such as the World Bank and their Multilateral Investment Guarantee Agency. PRI has become particularly important to lenders in the wake of the Asian financial crisis and sovereign defaults by Russia, Indonesia and Pakistan.
- Entering into "hedging contracts" to protect themselves against fluctuations in interest rates and currency exchange rates. These are financial devices used to reduce losses as a result of future price movements.
- Creating a risk friendly investment environment by establishing a good relationship with the workforce. Too often, foreign businesses are perceived as having uncaring managers who do not appreciate their workers. This can have dire consequences. One of the best ways to protect a business's assets is to generate a loyal workforce. Management can be replaced much more easily than can a workforce.
- Incorporating strong arbitration language into contracts to address labour disputes.
- Enhancing on-site security to protect against terrorist attacks.
- Being attuned to what is happening in your host country. This may sound obvious, but it is easy to lose sight of the bigger political picture once immersed in operational issues.

¹ The Export Credits Guarantee Department is a government department based in London and Cardiff. Its mission is to benefit the UK economy by helping exporters of UK goods and services to win business, and UK firms to invest overseas. It provides guarantees, insurance and reinsurance against loss, taking account of the government's international policies. ECGD helps exporting UK companies compete in overseas markets by arranging medium-long-term finance facilities and credit insurance cover for contracts ranging from around £ 20 000 up to hundreds of millions of pounds. ECGD provides cover for over 120 countries. When supporting finance, ECGD does not act as a lender but provides repayment guarantees to UK lending banks. ECGD insurance cover provides protection to UK exporters against a number of the commercial and political risks that arise during the manufacturing and credit periods. Similarly, ECGD Investment Insurance cover protects UK investors against certain political risks involved in investing overseas. These insurance covers are particularly useful for exports to, and investments in, emerging markets.

After an operating environment has changed, it is often too late to do anything about it. Remain engaged with your local embassy and chambers of commerce. A collective voice is more powerful than that of an individual firm, even if the firm has a solid relationship with governing authorities.

22.11.1 Assessing political risk factors

Regrettably there are no standard techniques such as control charts that can be used to minimise political risk. However, progressive companies tend to use tools such as decision analysis based on decision trees and scenario analysis to help them appreciate the risks associated with a given business opportunity. Additionally with fast computing capability available, businesses can use mathematical models to help the decision-making process and reduce the impact of uncertainty. For investors, the nature of political risk they are exposed to varies significantly depending on the type of investment they are engaged in and hence whether they fall into the direct or portfolio category. In general, portfolio investors are more likely to be affected by macropolitical risks, such as a sudden increase in interest rates or unanticipated currency devaluation, while direct investors (investing in individual businesses) tend to be affected more by business-specific risks. These investors therefore need to focus on those political dynamics that affect the overall business environment in a host country. When assessing political stability, the focus should be on the legitimacy of state authority, the ability of that authority to impose and enforce decrees, the level of corruption that pervades the system of authority, and the degree of political fractionalisation that is present (Wagner 2000). For investors, effective political risk management requires distinguishing between developments that pose true risks, that is well-defined threats to business performance from political events and media headline grabbing events.

22.11.2 Prioritising political risk factors

Once identified and assessed in terms of their probability and impact, political risks can be prioritised so that management energy is used in the most efficient way. A way of communicating the varying likely impact of political risks to a management team or board is through the use of a risk map (as discussed in Chapter 5) or a risk register, where the risks have been recorded in descending order. Visual representations, which permit information to be readily and quickly assimilated are commonly preferred by boards to reduce board meeting preparation time.

22.11.3 Improving relative bargaining power

In an attempt to overcome political risk, some businesses seek to develop a stronger bargaining position in the country within which they are operating. For instance a business might attempt to create a situation in which the government of the country loses more than it gains by taking action against the interests of the business. This could be the case when the business has technical knowledge that will be lost to the country if the business moves to another country to avoid, say, new regulations. The extent of bargaining power may be improved if the business is as fully integrated as possible with the local economy so that it becomes part of the country's infrastructure. A good example is the car industry, which typically uses local labour, suppliers and subcomponent manufacturers. If the business chooses to relocate, the local economy is hit hard from loss of employment, loss of employee spending and a reduction in sales for manufacturers and suppliers. Risk management techniques here may include: developing good relations with the host government and other local political groups; producing as much of the

product locally as possible; creating joint ventures and hiring local people to manage and run the operation; carrying out extensive local research and development; and developing good employee relations with the local labour force (Griffiths and Wall 2005). These techniques draw to the attention of the host country the disbenefits to the economy, of overactive (and unwelcome) interference in the business's activities.

22.12 SUMMARY

In a fully developed enterprise risk management process, political risk will be addressed as a primary source of risk and opportunity. The degree to which a business trades and particularly plans to expand its business activities overseas will dictate the importance that it will attach to political risk exposure, reviewing market expansion prospects and preparing responses to them. There is always somewhere in the world which is going through significant change which impacts on existing and potential markets. At the time of writing Germany (the third largest economy in the world) was preparing for a general election. Since 1945, three parties have dominated German politics: the Christian Democratic Union (CDU), with its southern sister party the Christian Social Union (CSU) on the right, and the Social Democratic Party (SPD) on the left. Currently the opinion polls for the SPD led by Gerhard Schroeder and the CDU led by party chairwomen Angela Merkel are really tight. Hence speculation about post-election coalitions is rife. Across the parties consideration is being given to reforming labour market law, tax and the welfare system. In some quarters increasing internal security and raising VAT are being contemplated. Hence it is difficult to predict with any certainty what the final policies will be.

This chapter reflected on political risk being composed of two broad categories, macro- and micropolitical risk. The former affecting all businesses across a country, while the latter impacting a particular industry or sector. Conducting business with foreign governments or private entities is exposed to a series of events leading to contract frustration. The Zonis and Wilkin political risk framework was examined which is composed of three elements: external drivers, interaction drivers and internal drivers. The related experiences of US energy companies in India were very poignant. While there may be broad appeal to invest in transition economies the legacy of worker ethics, poor infrastructure and the instability of the price of raw materials all overlaid by uncertain fiscal policies takes the shine off potential returns. It was acknowledged that any business venture may be resisted by pressure groups and depending on the scale and nature of the venture may attract the attention of organisations such as Greenpeace, or Friends of the Earth. Most important of all, any response to political risk needs to be initiated early enough to afford the opportunity to be able to initiate one or a combination of responses so that they can make a difference. This entails ensuring that the risk is identified and assessed early and this all depends on good intelligence.

22.13 REFERENCES

- Deep, A. (2001) "A Firm Foundation for Project Finance" in *Financial Times Mastering Risk Volume 1: Concepts*, editor James Pickford, Pearson Education Ltd, UK.
- Eppen, G.D. (2001) "Charting a Course Through the Perils of Production" in *Financial Times Mastering Risk Volume 1: Concepts*, executive editor James Pickford, Pearson Education Ltd, UK.
- Griffiths, A. and Wall, S. (2005) *Economics for Business and Management, a Student Text*, Pearson Education Limited, Harlow, England.

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- Hunt, B. (2001) "Issue of the Moment: The Rise and Rise of Risk Management", in *Financial Times Mastering Risk Volume 1: Concepts*, editor James Pickford, Pearson Education Ltd, UK.
- Kobrin, S.J. (1997) "Globalization and Multinationals" in *Financial Times Mastering Management*, published by Pearson Education Ltd, UK.
- Wagner, D. (2000) *Defining "Political Risk"*, International Risk Management Institute.
- Zonis, M. and Wilkin, S. (2001) "Driving Defensively Through a Minefield of Political Risk", in *Financial Times Mastering Risk Volume 1: Concepts*, editor James Pickford, Pearson Education Ltd, UK.

The previous chapter looked at political risk. This chapter examines “market” risk, the fifth of the macro influences within the section of the risk taxonomy called “business operating environment”, described in Chapter 11. If market risk and opportunity is to be fully understood it must be examined through a wide-angle lens to appreciate the overlap with all other classes of risk, as part of a holistic approach to enterprise risk management. There is an overlap for instance with technology risk discussed in Chapter 18 which examined subjects like Mechatronics, which can lead to new products, product development and/or increases in market share. Economic risk described in Chapter 19 overlaps with market risk in that demand is clearly influenced by such issues as government policy, employment levels and inflation. Additionally there is an overlap with social risk discussed in Chapter 24 where changes in demographics, lifestyle, standard of living and disposable income all create changes in demand. An appreciation of market risk entails gaining an insight into the market structure within which a business operates to understand obvious issues such as the size of the market and the number of competitors, but also any barriers to entry, company-specific competencies required, bargaining power of suppliers, product diversification and so on. The rate of change is now so rapid in some markets such as media and electronics that proactive risk management is vital to stay in business let alone retain market share. Market risk policies should take into account the nature and complexity of the business’s activities, objectives, competitiveness, the regulatory environment, together with its staff and technological capabilities. Market risk is treated differently here to the approach adopted by the financial sector, as discussed in Section 23.1 below. The structure of this chapter is described in Figure 23.1.

23.1 DEFINITION OF MARKET RISK

What is market risk? The simplistic definition adopted here is as follows: market risk is the exposure to a potential loss arising from diminishing sales or margins resulting from changes in market conditions, outside of the control of the business. All businesses are exposed to some form of market risk. The level and source of market risk differs from industry to industry and from company to company within the same industry. Market risk is multifaceted and has to do with market structure, the strategic direction adopted for market growth, price variation, price elasticity and the behaviour of suppliers and buyers. While different industries face specific forms of market risks, there are some market risks that are faced by all companies. For example, erosion of market share, an increase in number of competitors, downturn in market size and substitute products. The definition of market risk offered here differs from other texts, which refer to market risk encompassing subjects such as interest rate, foreign exchange, equity and commodity risk. These risk types are considered here to be financial risks and are dealt with under Chapter 16. The financial sector in particular, it could be said, has a far more narrow and specific focus than, say, the software, telecommunications and electrical goods industries. Within the financial sector, market risk is defined as the risk of adverse changes of market prices

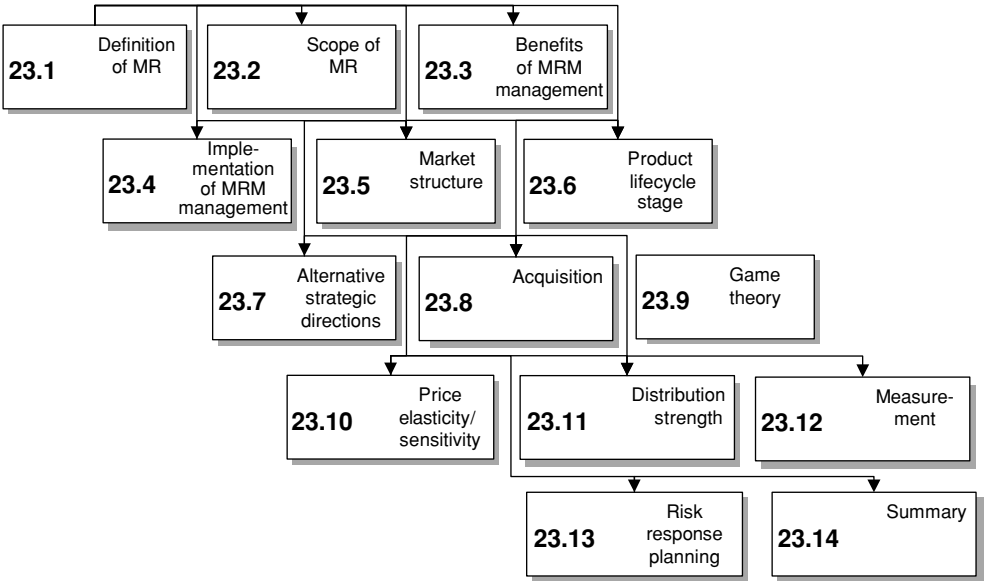


Figure 23.1 Structure of Chapter 23

of the trading portfolio during the period required to liquidate the transactions.¹ The definition adopted here leans towards the broad economist’s definition, where goods and services are traded in a free market.²

23.2 SCOPE OF MARKET RISK

It is important for any business to recognise the extent of market risk in the environment and how it can be responded to. This naturally requires understanding the environment and its various components (see Figure 23.2). Each component has a direct impact on the welfare of a business. Demographic trends affect the size of the market, its location and, to a degree, the kind of goods and services required. The legal and political characteristics of the environment affect a business particularly with regard to the ability to participate in foreign markets and the ease with which foreign competitors are able to enter the domestic market. Changes in the economic environment affect marketing by way of the pattern of economic growth and movements in interest and exchange rates. Innovation and technological advances introduce standards for competition and opportunities for the marketing of new products and services. Competition can both limit and erode market share. Legislation introduced to protect the environment can raise the unit cost of production while at the same time creating new opportunities. It is necessary for any business to monitor the macro environment to ensure that an appropriate

¹ A transaction for a commercial bank is the collection of a deposit or the provision of a loan. All related transactions make up the “banking portfolio”. For investment banks, which are in the business of market transactions within capital markets, transactions relate to derivatives, foreign exchange and equity. These transactions make up the “market portfolio”.

² A free market is one over which the central authorities exert no direct control. Buyers and sellers are free to arrive at any agreements on quantities to be traded and on prices at which trade will occur. A controlled market is one over which the central authorities exert some substantial, direct control by, say, licensing buyers and sellers in the market, by setting legal minimum or maximum prices at which trade can take place or by setting quotas controlling the amounts that individual buyers and sellers may trade in the market.

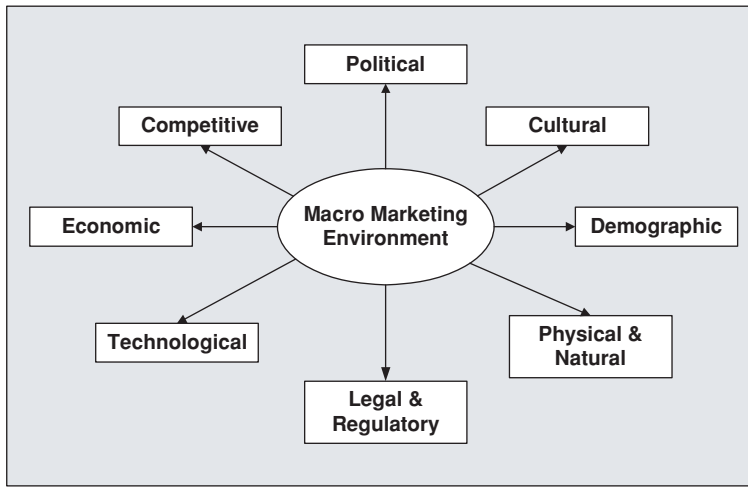


Figure 23.2 Sources of market risk and opportunity. (Source: Bradley 1995)

response is adopted at the micro level. Environmental analysis allows the business to respond to changes and cope with marketing uncertainty.

23.2.1 Levels of uncertainty in the marketing environment

The marketing capability of a business will depend on its ability to cope with the elements of the external environment. The external environment includes the macro environment, the industry environment and the task environment. The business's macro environment consists of the general economic, social, legal, technological and cultural factors and their influence on business and industry. The industry environment refers to demand and competition in an industry, the system of distributors and suppliers and the network of relationships involving companies in several industries (Porter 1980). The task environment relates to the environment specific to the business such as the local labour market, transport infrastructure and supplier network. Monitoring, analysing and understanding the macro and industry environment is a key part of a business marketing capability and according to Möller and Antilla (1987) includes the ability to understand:

- The complex influences affecting the industry;
- How demand arises in an industry, the role of primary customers, derived demand and the value of marketing channels;
- The competitive dynamics of an industry, e.g. the role of strategic industry groups, price formation and changing products and technology; and
- The importance of supplier markets, e.g. how the development of supplier markets influences competition.

Uncertainty relates to a business's confidence in expectations about known events. For instance a business may know that the price of raw materials will rise, but it is unsure by how much. Whereas risk refers to events that may or may not happen, such as a new competitor entering the market. Risk includes the probability of loss and the significance of what might be lost. One

of the best ways for a business to reduce perceived uncertainty about markets is to understand them by obtaining more information about the factors which require clarity. However, it is rarely possible to obtain sufficient information to remove uncertainty altogether. The method of dealing with risks and unavoidable uncertainty are usually part of the corporate culture of a business and reflect the psychological make-up of senior managers. The quality of management has a pronounced effect on the expansion of a business. Quality of management includes a willingness to take risks, it also includes a willingness to search for ways of avoiding risk and still expand (Bradley 1995).

23.3 BENEFITS OF MARKET RISK MANAGEMENT

Market risk management affords a business benefits such as but not limited to:

- Improves the ability to achieve its business objectives.
- Encourages a systematic and methodical review of the macro and micro market environment.
- Supports a proactive approach to seeking out opportunities from changes in market conditions.
- Ensures that market risks are identified, measured, monitored, controlled and regularly reported to senior management or the board of directors.
- Provides analysis of risks and opportunities associated with barriers to market entry.

23.4 IMPLEMENTATION OF MARKET RISK MANAGEMENT

The development of a sound system will depend on a number of issues such as:

- The risk management system not overly constraining risk taking, slowing down decision-making processes or limiting the volume of business undertaken.
- Those responsible for establishing and implementing the risk management framework should be distinct from the managers of the individual business units.
- The development of a culture that rewards the disclosure of risks when they exist, rather than encouraging managers to hide them.

23.5 MARKET STRUCTURE

Market structures are the characteristics of a market, which determine firms' behaviour. Economists single out a small number of characteristics:

- the number of firms in the market and their relative size;
- the ease or difficulty with which new entrants might come in;
- the extent to which the goods are similar;
- the extent to which all firms in the market share the same knowledge; and
- the extent to which the actions of one firm will affect another firm.

23.5.1 The number of firms in an industry

The number of firms in an industry may vary from one to many.

- A monopoly is said to exist where there is only one supplier in the market.
- A market structure is oligopolistic where it is dominated by a few large producers. In an oligopolistic market there may be a large number of firms, but the key characteristic is that

most are small and relatively unimportant, while a small number of large firms produce most of the output of the industry.

- In perfect competition or in a monopolistic competition there is a large number of small suppliers, none of which is large enough to dominate the market.

23.5.2 Barriers to entry

Market structures are not only affected by the number of firms in an industry and their relative output (to total demand) but also by the potential number of new entrants to the market. Businesses already in a market are not only exposed to the risk of competition from other businesses already in the market, but also from new entrants. JetBlue, the low-cost airline and a relatively new entrant to the US airline market, achieved a valuation on its fifth birthday in 2005 of \$2 billion, \$500 million more than American Airlines, the world's largest airline. (Its high valuation was based on the speed at which it reached major carrier status.) On the other hand businesses considering entering a market for the first time must make themselves aware of the obstacles or threats to success. There are a number of barriers to entry, which reduce the potential risk of further competitors entering an industry. These include capital costs, scale economies, natural cost advantages, legal barriers, marketing barriers and restrictive practices. A key challenge for commercial airline JetBlue, for instance, was securing slots at New York's John F. Kennedy airport. JetBlue's recognition of JFK's potential for a domestic operator was a key aspect of its success. The timing of new entrants can also be critical. As reported in the press during February 2005, JetBlue benefited from the fact that network carriers were more intent on saving themselves than killing rivals and being one of the few companies to purchase aircraft during the downturn enabled them to buy them on enviable terms from Airbus.

Buying a bakers is relatively cheap and therefore the entry cost for most single outlet retailers is small. Buying an aluminium smelter or a car plant on the other hand is extremely expensive. Entry costs to these industries are very high and only large companies on the whole can pay them. Capital costs therefore can represent a very important barrier to entry to a market. In some industries, economies of scale are very large. A few firms operating at lowest average cost (the optimum level of production) can satisfy all the demand of buyers. This will act as a barrier to entry because any new firm entering the market is likely to produce less and therefore have much higher average costs than the few established producers. Existing businesses in a market may also have natural cost advantages such as the close proximity to natural resources, a motorway network or an energy source. As a result, they will either be able to produce at lower cost or be able to generate higher revenues than their potential competitors.

The law may give firms particular privileges. Patent laws can prevent competitor firms from making a product for a given number of years after its invention. The government may give a firm exclusive rights to production. It may for instance give broadcast licences to commercial television companies or it may make nationalised industries into monopolies by legally forbidding firms to set up in the industry as used to be the case with the Post Office. Existing firms in an industry may be able to erect very high barriers through high spending and advertising and marketing. The purpose of this is to make consumers associate a particular type of good with the firm's product creating a powerful brand image. One example, which succeeded for some 50 years, was the Hoover company with its vacuum cleaner. Until recently a personnel stereo was often called a "Walkman", the brand name of Sony who first put it on the market.

Marketing barriers can make an industry almost impossible to enter. Firms may deliberately restrict competition through restrictive practices. For instance a manufacturer may refuse to sell goods to a retailer which stocks the products of a competitor firm. Firms may be prepared to lower prices for long enough to drive out a new entrant to the business. The cross channel ferry companies lowered their prices just prior to the opening of the channel tunnel to compete with Eurotunnel. Car insurance companies advertise aggressively to both maintain or increase market share and deter new entrants. The extent to which there is freedom of entry to a market varies enormously. Manufacturing industries with high capital costs and with extensive marketing power tend to have higher barriers than service industries. But many service industries have high barriers too. Banking for instance has a high capital cost of entry, legal permission is required and marketing barriers are high.

New entrants/competition

Company-specific competencies determine the basis of competition and so determine the success or failure of a company. For example, retailers compete on distribution skills, consumer products depend on successful advertising, consumer electronics depend on engineering design (Bradley 1995). These critical capabilities change over time, however, requiring businesses to adapt. Failure occurs if the business does not recognise the shift in the critical capabilities required, or if it cannot obtain competence in the new critical capability introduced as an innovation. Currently innovation (other than in the conventional sense) is also seen as attention to customer service. At a marketing meeting hosted by Proctor & Gamble Europe at its Schwalbach Technical Centre in Frankfurt, in June 2005, innovation was described as simply improving products, services and business processes for customers. This is counter to the argument that as all products and services have become commoditised, the only way to break free from competition is to innovate your way to some form of uniqueness, either by achieving a breakthrough in product or service attributes or by adopting a branding strategy that associates the product or service with a unique set of ideas or emotions. Patrick Barwise (professor of management and marketing at the London Business School) argues that it is the little things that count, that customers are much less interested in breakthrough technologies than in quality products, good service, on time delivery and other benefits commonly provided by the competent company (Barwick and Meehan 2004).

Successful firms attempt to monitor their closest competitors very carefully to avoid being outmanoeuvred by technological developments. New technologies have the ability to blur the distinction between competitors, suppliers and customers. Changing technology may allow a firm that was once a customer to become a competitor. For these reasons, a business must be alert to the actions of other firms in the industry. New entrants to an industry add capacity. However, if the capacity added is greater than growth in demand, this will reduce profitability (on the assumption that competition is purely through price). The threat of new entrants is low in cases where:

- Industries are capital intensive
- Economies of scale are a key factor
- Access to resources is a key factor (such as through government licences)
- Access to distribution is difficult
- Investment by buyers is high and hence the appetite or ability to switch supplier is low

New entrants may seek not to replicate the value chain of existing firms but to focus on certain activities where barriers to entry are lower. For example, a firm may enter the market for a product but subcontract the manufacturing to a low-cost producer and concentrate on research and development, marketing, sales and distribution (Friend and Zehle 2004). A business that has achieved economies of scale in one industry may be able to apply these economies in another language.

23.5.3 Product homogeneity, product diversity and branding

In some industries products are essentially identical whichever firm produces them. Coal, aluminium and gas are examples. This is not to say there are not different grades of coal or types of aluminium, but no producer has a monopoly on the production of any such grade or type. Goods which are identical are called homogeneous goods. Businesses find it much easier to control their markets if they can produce goods which are non-homogeneous. Rarely do businesses rely on one product or service. Generally a business is concerned with managing a number of products or services. Hence the problem for marketing managers is one of managing a portfolio. The portfolio concept is valuable as it classifies products or services according to where they are on the lifecycle referred to above, relative to competing products.

When examining the product portfolio of most businesses, it is usually possible to find those products in which the business should invest in for the future, those in which it should maintain existing investment levels and those in which investment should be limited, or even withdrawn. By classifying the portfolio of products in this way, it is easier to identify the opportunities – identify the gaps in the business's product line so that new ones might be developed and introduced. Differentiating their product from their competitors and creating brands allows them to build up brand loyalty. This in turn leads to a reduction in the elasticity of demand for their product. A branded good may be physically no different from its competitors, or it may be very slightly different. However, branding has value for the firm because consumers think that the product is very different, so different that rival products are a very poor substitute for it. This perception is built up through advertising and marketing and enables firms to charge higher prices without losing very much custom (i.e. demand is relatively inelastic, price increases lead to a small decrease in demand).

23.5.4 Knowledge

Buyers and sellers are said to have perfect knowledge or information if they are fully informed of prices and output in the industry. So if one firm were to put up its prices, it would lose all its customers because they would buy from elsewhere in the industry. So there can only be one price in the industry. Perfect knowledge also implies that a firm has access to all information which is available to other firms in its industry. In UK agriculture for instance knowledge is widely available. Farmers can obtain information about different strains of seeds, the most effective combinations of fertilisers and pesticides and when it is best to plant and reap crops. Perfect knowledge does not imply that all firms in an industry will possess all information. Businesses that do not take the trouble to obtain the relevant readily available information will survive in the short term but will eventually be driven out of business by more efficient competitors. Businesses cannot predict a bear market, a recession, new market entrants, natural disasters or breakthroughs in technology. Perfect information only means that all businesses

have the same access to information. Firms have imperfect knowledge where for instance there are industrial secrets. Individual firms may not know the market share of their competitors or they may be unaware of new technology or new products to be launched by rival companies. Information could then act as a barrier to entry, preventing or discouraging new firms from entering the industry.

23.5.5 Interrelationships within markets

There are two possible relationships between businesses in an industry. Businesses may be independent of each other. This means that the actions of any one business will have no significant impact on any other single business in the industry. In agriculture, for instance, the decision of one farmer to grow more wheat one season will have no direct impact on any other farmer. This is one reason why perfect knowledge exists to some degree in agriculture. There is no point in keeping secrets if your actions will not benefit you at the expense of your competitors. If businesses are interdependent then the actions of one business will have an impact on other businesses. An advertising campaign for one brand of washing detergent for instance is designed to attract customers away from other brands. Businesses are more likely to be interdependent if there are few businesses in the industry.

Bargaining power of suppliers

The balance of power between suppliers and the supplied industry is a function of the degree of fragmentation of that industry. For instance, in an industry with many small suppliers and few large buyers, the bargaining power of the suppliers will be weak. Whereas when there are few large suppliers their bargaining power will be strong. In industries where inputs are standardised and there is ample availability of substitutes, provided the costs of switching are reasonable, the ability of suppliers to raise prices is limited. Certain supply chain strategies such as just-in-time manufacturing or just holding low stocks increases the dependency on suppliers. To reduce the bargaining power of suppliers, strategies are to maintain a diverse base of suppliers or to make a few suppliers dependent on your business as has been the practice of Marks and Spencer. However, on a cautionary note the squeezing of suppliers must not be too severe as there is a direct dependency between purchaser and buyer.

Bargaining power of buyers

The prices that business can obtain will have the largest impact on profitability. In most instances buyers shop around for the best prices and hence exert a downward pressure on prices. There are a number of factors which increase the power of buyers: (1) Buyers are large compared with the supplying industry. For examples, farmers selling to a few large supermarket chains suffer from this. Tesco, Asda and Sainsbury hold the majority of the market share between them. (2) In business-to-business markets where buyers produce the product in-house, extending their value chain backwards. This is not only a serious threat, it also increases a buyer's knowledge of the suppliers' costs. Knowledge of the suppliers' costs considerably increases the bargaining position of buyers. (3) Buyers can switch suppliers with minimal cost impact. Therefore the extent to which products can be differentiated will have a direct impact on prices.

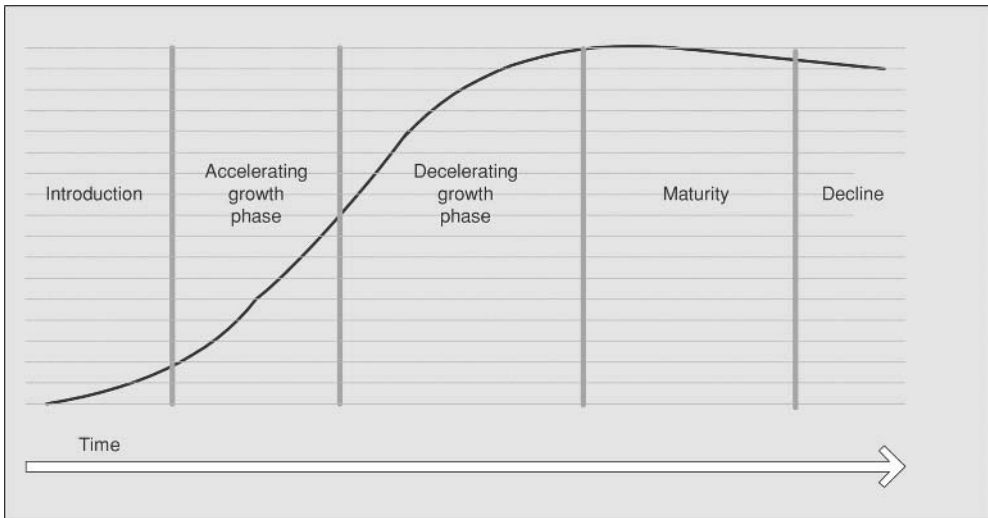


Figure 23.3 Product lifecycle stages

23.6 PRODUCT LIFECYCLE STAGE

It has been observed that markets for products grow in an S-shaped manner and eventually decline to be replaced by new products, as illustrated in Figure 23.3. For the purposes of market forecasting, the product lifecycle is commonly analysed in five stages:

- *Introduction phase*: Sales volumes are low and increase in a linear fashion. There are few competitors, the product may suffer from quality problems and there is little variety between different versions of the product. Unit costs and prices are high.
- *Accelerating growth phase*: Buyer groups widen and sales increase rapidly. More suppliers enter the market and prices start to fall. A greater variety of product forms start to appear.
- *Decelerating growth phase*: Penetration is still increasing, but at a declining rate. Prices are falling more quickly and become a significant issue. Variety increases further and there is an increased focus on product quality. Late adopters buy the product.
- *Maturity*: Penetration is no longer increasing. There may be consolidation. Prices are declining further, but at a slower rate.
- *Declining phase*: Prices are low, but no longer declining. Some competitors may exit the market as the returns are too small or other emerging markets appear more rewarding.

This framework of product sales provides a tool to forecast sales volumes, prices and market share: the essential elements of the demand forecast. The framework is a way of viewing product opportunity or risk.

23.6.1 Sales growth

A part of risk management is understanding demand risk, which in turn requires an understanding of the likelihood of a major downturn. How does a business prepare for a such a risk?

Is a business able to withstand a fall in sales? An attractive scenario would be one where it was possible to take advantage of a downturn and gain market share at the expense of one or more competitors. An example of such a situation is the downturn experienced in the computer industry. Didier Cossin (2005) cites the example where, as a result of a thorough cost focus, computer company Dell created a strong margin advantage during the boom years of the tech bubble (11.2% margin in 1998 versus Compaq’s 4.5%). When the downturn hit, Cossin states, Dell was able to take over competitors by decreasing its prices by about the level of its competitors’ margins. While others saw sales going down by 30% on average, Dell sales were flat in 2001, hence giving it a position of market leader (with a remarkable return on operating assets of 38.8%) while others were seeing a fall in sales, income and profit.

23.7 ALTERNATIVE STRATEGIC DIRECTIONS

The alternative strategic directions for a business are: to grow the business, do nothing or withdraw. Generally business plans are developed to expand a business.

A business can be developed in four possible directions (see Figure 23.4):

- Market penetration – sell more of the same to the same market
- Product development – sell new products to existing customers
- Market development – seek out new markets for existing products
- Diversification – sell new products to new groups of customers

With all development strategies their success or otherwise will depend on the degree of success in leveraging core competencies and resources. The scope for leverage is highest for a market penetration and lowest for a minor diversification strategy.

23.7.1 Market penetration

Selling more of an existing product to the same customers or market is generally regarded as the easiest development strategy. Products and markets are well known and this strategy potentially provides the best scope for leveraging existing skills and assets. In growing markets

| | | PRODUCT | | | |
|------------------------|----------|--------------------|---------------------|--------------------|------|
| | | Existing | New | | |
| MARKET/CUSTOMER GROUPS | Existing | Market penetration | Product development | SCOPE FOR LEVERAGE | High |
| | New | Market development | Diversification | | Low |
| | | High | Low | SCOPE FOR LEVERAGE | |

Figure 23.4 Alternative strategic directions for business development. (Source: Friend and Zehle 2004)

all competitors, to a greater or lesser extent, pursue penetration strategies to increase market share.

23.7.2 Product development

The basis of a product development strategy is to sell new products in addition to existing products into the same market or to the same customer groups. The term “new products” is used here to describe genuinely new products that satisfy different needs and generate incremental sales, not enhancements or new versions of existing products. As the new products are sold into existing markets or to existing customers, some aspects of the value chain can be leveraged, particularly distribution and customer knowledge.

A common example of product development is the move by car insurance businesses into home and travel insurance. There are risks attached to this strategy in that while the business will have extensive data upon which to set premium levels for car insurance, this data will not exist for the other business streams. Additionally, if the service provided by the new businesses attracts adverse publicity, it may reduce the customer base for the core business.

A brand may be extended to new products but there is a risk that the brand is overstretched and its value is diluted. In this case the strategy becomes solely a diversification strategy as opposed to product development, which may lead to lower sales of existing products because the brand value has been diluted.

Given that on the one hand many businesses suffer substantial and sometimes crippling losses from the failure of *new products* introduced by them, and on the other businesses such as Sony, Apple, Dupont, BMW, Hewlett Packard and Toshiba (see Box 23.1) owe their success to the planned introduction of new products, market development is a critical area of risk and opportunity management.

Box 23.1 Market for energy storage devices

A clear opportunity exists for new product development of energy storage devices. The ubiquitous laptop computers and mobile telephone, now considered essential for business life, are both dependent on energy storage devices – batteries. Product development resulting from technological innovation in battery design will lead to technological advances in the industries that depend on their products, computing and telecommunications. Kevin Fitzgerald, chief executive of Ener1 (a Florida based battery company) has said “because battery capacity is a bottleneck in product innovation, engineers work around the constraints when developing products (however) by developing storage cells that are light, powerful and long-lasting, companies such as ours can eliminate the energy bottleneck and enhance product development in a variety of industries”. The pressure to produce more efficient energy storage devices is taking place on three scales:

- Computer, telephone and consumer electronics manufacturers are desperate for better power sources, as they cram more battery draining features on to mobile devices.
- Vehicle manufacturers are under strong pressure to replace diesel and internal combustion engines with electrically powered alternatives for environmental reasons.
- The electricity supply industry needs to be able to store power generated from renewable sources that are only intermittently available, such as wind and sunshine.

Lithium battery development appears to be making significant strides. Previously they were criticised for slow energy release (for some high powered applications), slow recharging

and short life. However, two breakthroughs in recharging speed were announced in March 2005. Altair Nanotechnologies, a specialist Nevada based company, said lithium batteries made with its new electrode “nanomaterials” had significantly reduced recharge times. Toshiba promptly followed suit by making similar claims for its new lithium battery which can recharge 80 per cent of its capacity within a minute and 100 per cent in “only a few more minutes” stating its breakthrough is also based on using nanoparticles. Batteries now represent a \$48 billion a year world market, growing 6.5 per cent annually according to Freedonia, the US based business research group.

Source: (Cookson 2005).

Yet providing a description of what constitutes success or failure to facilitate risk management is difficult to pin down due to the absence of an agreed definition of what constitutes a new product and what amounts to failure. However, of assistance is a seminal study, on which most succeeding analyses have been based, undertaken by the National Industrial Conference Board (NICB) in the early 1960s and first reported in 1964 (National Industrial Conference Board 1964). In rank order of importance, the eight major causes of failure were cited as:

- Inadequate market analysis
- Product defects
- Higher costs than anticipated
- Poor timing
- Competitive reaction
- Insufficient marketing effort
- Inadequate sales force
- Inadequate distribution

Robert Cooper of McGill University in Canada undertook a study called Project New-Product, which deserves particular attention. His findings were derived from a random sample of 177 firms located in Ontario and Quebec, representing a broad spectrum of industries and markets. Of the 177 firms, 103 agreed to participate yielding 102 successes and 93 failures. From a literature review he derived eight research propositions which he hypothesised would positively relate to product success as shown in Box 23.2.

To test these hypotheses, 77 variables were characterised and respondents were asked to rate each success and failure along these 77 dimensions, using scales of 0 to 10 indicating whether the factor was relevant or not. Preliminary analysis showed a high degree of intercorrelation between 77 variables and these were reduced to 18 summary variables using the factor analysis technique. Subsequently 11 of these factors were found to discriminate between success and failure, which are listed in order of importance below.

1. Introducing a unique but superior product.
2. Having market knowledge and marketing proficiency.
3. Having a technical and production synergy and proficiency.
4. Avoiding dynamic markets with many new product introductions.
5. Being in a large high need growth market.
6. Avoiding introducing a high priced product with no economic advantage.
7. Having a good “product/company fit” with respect to managerial and marketing resources.
8. Avoiding a competitive market with satisfied customers.

Box 23.2 Cooper product success factors

| | |
|--|-----------------------------------|
| 1. Products which are superior, have a differential or economic advantage or are unique relative to competing products. | |
| 2. Products where other elements of the commercial entity – selling, distribution, production etc. – are proficient | Commercial entity |
| 3. Projects where considerable technical and market knowledge is acquired. | Information required |
| 4. Projects where the technical, marketing and evaluative (process) activities are proficiently undertaken. | Proficiency of process activities |
| 5. Products entering mass, large, growing, dynamic and uncompetitive markets, with a high unsatisfied need for such products. | Nature of the market place |
| 6. Projects where a high degree of resource compatibility exists between the needs of the project and the resource base of the firm. | Resource base of the firm |
| 7. Familiar projects to the firm (do not involve new technologies, new markets, etc.). | Nature of the project |
| 8. Market-derived projects (product idea came from the market place). | |

9. Avoiding products “new to the firm”.
10. Having a strong marketing communications and launch effort.
11. Having a market-derived idea with considerable investment involved.

23.7.3 Market development

The common strategy adopted is to seek to sell existing products to new customer groups or markets. A classic market development strategy is extending the geographical reach, either within the home country or exporting. This generally requires modifications to the marketing mix (product, price, promotion or place) such as adjustments to the products so that they appeal to new market segments, printing manuals in different languages and ensuring compliance with local standards. An example of marketing development is the diversification of PepsiCo into snack foods making it a food and beverage company – see Box 23.3. However, extending geographical reach must be accomplished within an environment that commonly is predominantly uncontrollable. The uncontrollable elements are: the extent and rate of economic development in the market (e.g. sale of electrical goods in developing countries may be difficult), social and cultural influences which prohibit or restrict product sales, political and legal restrictions, business practices and the competition policy. When a firm begins to do business in foreign markets, an additional set of uncontrollables come into play. Bradley (1995) suggests the differences arise under the following headings:

- Political and legal systems
- Economic trends and levels of development
- Physical features, geography and topography
- Distribution systems, and
- Government sponsored

Box 23.3 PepsiCo diversification

PepsiCo: Extract from the *Financial Times* [my words in brackets]

Nearly 100 years into what is arguably the world's most famous corporate rivalry, Coca-Cola was firmly in the ascendancy over the struggling PepsiCo. It was October 1996, and the cover story on the *Fortune* magazine explained "How Coke is Kicking Pepsi's Can". The article quoted Robert Goizueta, Coke's then chairman, dismissing Pepsi as a spent force. "As they become less relevant", he said "I don't need to look at them very much any more". Eight years later, everything has changed. PepsiCo has become the investor's favourite, its shares more than doubled since their best of that month, while those of troubled Coke languish below where they stood then. Half of the story behind this role reversal is well known. A year after the *Fortune* article Mr Goizueta died, precipitating a period of management upheaval and sluggish growth from which Coke has yet to recover. Much less attention has been given to how PepsiCo emerged from its rival's shadow to become one of the best performing companies in the food and drink industry. In those eight years PepsiCo has increased its sales 45 per cent and net profits more than fourfold. While Coke derives all its revenues from beverages, PepsiCo is more diverse. The biggest part of the company is not cola but the Frito-Lay snack food business, which merged with Pepsi in 1965. Only two thirds of PepsiCo's beverage volume is carbonated soft drinks, compared with more than 80 per cent of Coke's. [...] As Cola's share of the US beverage market began to shrink in the late 1990s PepsiCo's diversification started to look the smarter choice. PepsiCo's earnings growth was a third greater than Coke's last year at 18 per cent and its sales growth four times higher at 8 per cent. [...] PepsiCo is [now] the world's fourth largest food and beverage company ranking behind Nestlé, Kraft and Unilever. [However, a new problem looms.] Much of the biggest challenge facing PepsiCo is consumer concern in North America and western Europe about obesity. A third of adults and one in six children in the US are clinically obese, according to the US Center for Disease Control and Prevention. [But] Mr Reinemund insists the obesity crisis can be an opportunity [upside risk] rather than a threat [downside risk] for companies that embrace consumer demand for healthier food and drink.

Source: Ward (2005a).

A classic example of extending geographical reach is the operating of new routes by airlines. One area that is likely to see rapid growth in air travel is India, where it is considered airlines can take advantage of decades of pent-up demand (Marcelo 2005). Marcelo advises that according to industry consultant Kapil Kaul, annual air passenger traffic in India could grow by at least 20% over the next five years to reach 50 million travellers from the 15 million of today. Assessment of the potential market is based on existing rail passenger figures. Fifty-two million Indians travel on premium class railways each year. In addition public appetite for air travel has been "wetted" by Air Decan, currently the only budget air carrier in operation in India.

23.7.4 Diversification

The strategy aims at selling new products into new markets. Diversification can be subdivided into related and unrelated diversification.

Related diversification means that a business stays broadly within the industry but needs to acquire new competencies and resources:

- A business can pursue a strategy of related diversification by means of vertical integration: extending the value chain backwards and forwards. For example, an airline may choose to undertake the maintenance of its fleet of aircraft rather than outsource it, or a manufacturing business may choose to make components rather than buying them from a supplier.
- A successful restaurant chain may decide to leverage its brand name to get into the frozen ready meal market. The skills required to run a restaurant and manufacture convenience foods for distribution in supermarkets are entirely different, but the brand and possibly some recipes may provide the link between the two.

Unrelated diversification takes a business into a completely new field, a different industry. As it is unrelated, it is sometimes difficult to establish a strategic logic for such a move particularly where there is only a limited degree of synergy. Such a move, however, would be more comprehensible if the existing market is in terminal decline or where new rewarding markets are emerging where consumer demand remains unsatisfied. Conglomerates are the archetypical diversified business, where a holding company manages a diverse collection of companies, acting almost like an investment fund. An example is Virgin Group, which has over 30 companies including well-known brands such as Virgin Trains, Virgin Mobile, Virgin Radio and Virgin Atlantic.

- The financial management and planning skills are core competencies of the head office and this expertise can be applied to make portfolio companies in different industries more successful.
- Diversified companies are less affected by a downturn in one industry.

An example of diversification is the strategy adopted by some luxury car makers of entering into the bottom end of car market by producing the smaller car for volume sales. This strategy is not without risk. BMW's launch of the "Mini" has been very successful with the planned opening of another plant to cope with demand. Other ventures have not fared so well, see Box 23.4.

Box 23.4 The risk of diversification

Mercedes: Extract from the *Financial Times* [my words in brackets]

"Smart is a disaster", Eckhard Cordes, Head of Mercedes, said this week. It is an unusually frank admission of the scale of the problem that has beset Daimler Chrysler's trendy small car brand ever since its troubled birth over a decade ago. [Daimler-Benz bought Chrysler, America's third largest car maker in 1998.] The marque has been owned by the German carmaker since it bought out Swatch, the watchmaker, from a joint venture in 1998 shortly before the first car launch. It has always been a disappointment. Smart has consistently missed its sales targets in spite of rapid model expansion and it quickly achieved iconic design status. It has also remained resolutely lossmaking, missing last year's break-even target and now further delaying the goal of returning to the black in 2006 until at least 2007. [...] Mr Cordes forecasts Smart will break even in 2007 but for many that has a repetitive ring about it. Jürgen Schrempp, Daimler chief executive, set a goal in 2000 that the marque would stop losing money by last year. Some analysts estimate that instead

Smart lost about €500m (\$655m, £343m) in 2004 – or €3300 for every vehicle sold. Many investors and analysts question the wisdom of continuing with Smart, warning that Mercedes runs the risk of becoming too thinly spread. “Why would you build a small car as a luxury carmaker?”, asks one leading shareholder. “It’s a segment with low profitability and ferocious competition.” Senior Daimler executives will meet in April to discuss a strategic review of Smart’s future.

Source: Mackintosh and Milne (2005).

23.8 ACQUISITION

Johnson and Scholes (1989) have identified alternative methods to implement a strategy once it has been selected, one of which includes acquisition. They describe the trade-off between cost, speed and risk exposure. Acquisitions can be a quick route for product development. Established companies often acquire smaller businesses to gain control of new technology and hence new products. Acquisition provides the opportunity to increase market share. Overseas acquisitions are a well-established way of building a foreign presence. An example is Coutts which acquired Bank von Ernst in Switzerland in 2003 adding 1000 staff and increasing Coutts’ assets by 20%. Coutts, founded in 1692, has enjoyed a reputation as the UK’s most exclusive bank, promising unrivalled personal service. Another example is BAE System’s acquisition of American company United Defence. However, as in this instance, acquisitions abroad can involve government agencies and as a result may be protracted affairs. The US regulatory agency, the Committee on Foreign Investment in the US (CFIUS), had called in for approval the proposed BAE takeover as part of its role of investigating large foreign acquisitions of American companies for potential national security threats. The CFIUS clearance marked a watershed for the Pentagon, which is now likely to have a foreign company as a prime contractor for several large weapons systems.

23.9 GAME THEORY

Game theory explores the reactions of one player to changes in strategy by another player. Oligopoly (see above) is characterised by price stability. One explanation of this is that changing price is a very risky strategy for one business because it will provoke a reaction from other firms. Non-price competition is common in oligoplastic markets as it is a less risky strategy than price competition. Successful branding enables producers to charge a premium price and earn abnormal profit on a product. The large number of different market strategies available to oligopolistic businesses may result in permanent disequilibrium in the market.

Central to the understanding of oligopoly is interdependence. The actions of one large firm in the industry will directly affect all other firms in the industry. It is essential therefore in any examination of oligopoly to understand the nature and consequences of those reactions. One powerful tool for the analysis of oligopolistic behaviour is the theory of games. Game theory has a wide variety of applications. In a game the players are interdependent. An aspect of game theory is that by limiting your own options, for example, you can make it clear to opponents how you will respond to their actions, whatever they do, thereby increasing the chances the other side will back down. The best move for a player depends upon how the other players

will react. Thomas Schelling and Robert Aumann, the pioneers in game theory, were awarded the Nobel prize for economics in October 2005.

23.9.1 Price stability

One commonly observed feature of an oligopoly is price stability. Businesses maintain stable prices over a pricing season which may last from six months to several years. Price stability may be a rational strategy for oligopolists. If an oligopolistic firm raises prices, it risks losing market share if its competitors do not follow suit. Lower market share could lead to lower profits and if investment and research and development budgets are cut, the ability to compete in the long run will be reduced. If it lowers its price it risks starting a price war. It could be that the size of the market will expand as consumers buy more of the industry’s products. But the benefits in the form of larger sales could well be more than offset by losses of revenue due to lower prices. All businesses in the industry could see sharp falls in profits as they battle it out. Eventually prices will have to rise again to restore profitability and the firm that started the price war could have lost market share. So changing prices is a risky strategy. When prices change as a result of an increase of raw materials or government intervention, all firms tend to change their prices by the same percentage. A rise in petrol prices by one company is usually matched by other petrol suppliers.

Games theory can be used to explain business behaviour and the potential source of risk. Consider Table 23.1. There are just two firms in the industry (it is a duopoly). Each firm has two strategies. It can either lower the price of its product or leave it unchanged. The figures in the boxes represent the change in profits firms A and B. The change in profits of business A of a particular combination of strategies is shown in italics. While the change in profits for business B is shown in bold. For instance if both businesses cut prices, business A will lose £10 million in profits while firm B will lose £20 million.

It is clear from the table that it is in both businesses’ interests to leave prices unchanged. If one business decides to lower its price in order to gain market share (and the other firm does not), it will increase its profits while the other firm would suffer a drop in profits. For instance if business B lowers its price it will gain £5 million, while firm A will lose £12 million. The same is true for business A. If it dropped its price and firm B did not react, business A would increase its profits. However, if business B did react and lower its prices too, the resulting price war would have disastrous consequences for both sides. Their respective sales would remain the same or similar, while the profit per unit of production would fall.

Table 23.1 Change in profits from different marketing strategies.

| | | Business B | |
|------------|-----------------------|-------------------------------------|-------------------------------------|
| | | Lower price | Leave price unchanged |
| Business A | Lower price | <i>−£10 (A)</i> −£20 (B) | <i>+£5m (A)</i> −£27m (B) |
| | Leave price unchanged | <i>−£12m (A)</i> +£5m (B) | <i>0 (A)</i> 0(B) |

| PRODUCT | PRICE | PROMOTION | PLACE |
|--|--|--|---|
| Design Features Quality Quantity Variations Packaging Brand Service | List price Discounts Credit terms Repeat purchase Payment method | Advertising Direct marketing Sales promotion Coupons Bundling Joint promotion Loyalty programmes Public relations | Geography Channels Retailers Opening times Order taking Fulfilment Delivery |

Figure 23.5 The marketing mix composed of the 4ps. (Source: Friend and Zehle 2004)

23.9.2 Non-price competition

A characteristic of oligopoly is the lack of price competition. Price wars can be very damaging for firms in an oligopolistic industry. So firms choose to compete in other ways apart from price. Firms decide on a marketing mix, a mixture of elements which form a coherent strategy designed to sell their products to the market. The marketing mix is often summarised as the “4ps” (Anderton 1991). Figure 23.5 describes a potential marketing mix composed of the commonly recognised elements of product, price, promotion and place.

Firms produce a product which appeals to their customers. The product may or may not be differentiated from rivals’ products. A price needs to be set but this could be above or below the price of competing products depending on the pricing strategy to be used. Promotion (advertising and sales promotion) is essential to inform buyers in the market that the good is on sale and to change their perceptions of a product in a favourable manner. A good distribution system is essential to get the product to the right place at the right time for the customer. An advertising campaign for instance by firm A is likely to be limited in cost and may increase market share. Other firms in the industry may react by launching their own advertising campaign, but there is a reasonable chance that the advertising campaign of the competitors may not be as good, plus advertising may expand the market as a whole. The reward for business A will be a small increase in market share and presumably profits as well. However, if the advertising campaign is unsuccessful and a competitor’s advertising campaign is a runaway success, the resultant loss of market share and corresponding loss of profits may be significant. So before any initiative is taken to increase market share, consideration has to be given to the likely response from competitors.

23.9.3 Branding

Interdependence limits the ability of oligopolistic firms to exploit markets to their own benefit. Ideally oligopolistic firms would like to turn themselves into monopolists with full control of their markets. One way of doing this is by the creation of strong brands.

- A strong brand has few good substitutes so far as the buyer is concerned. The firm is therefore able to charge a premium price (a relatively high price for a good) and earn monopoly profit on the good without seeing too great a fall in demand for it.
- It is very difficult for competitors to challenge the supremacy of the brand. For instance Mars bars, BMW cars and Omega watches all have stable demands at premium prices in the short run.

The Orange mobile phone brand is now hailed as one of Europe's most successful technology brands. The original branding strategy was launched in 1994 using the catchline "the future's bright, the future's Orange". The strategy revolved around an unusual brand name, distinctive colour coding and advertising that ran counter to the prevailing emphasis on technology nuts and bolts by emphasising emotions and not even featuring mobile phones. The launch stood for reassurance with its pledge to lead customers into a brave new world of technology. The strategy worked and by the end of 1995 Orange's UK customer base had more than doubled from 379 000 in 1994 to 785 000 in 2005 (Carter 2005). In 2005 France Telecom decided to revitalise the brand to overcome a branding problem, as over time Orange had lost ground to its competitors and in particular O₂, the mobile phone business spun off from the BT Group in 2001. The branding of Orange has proved difficult to maintain. It had lost its differentiation, it had become a commodity buy.

As strong brands are so difficult to create in the first instance, many businesses prefer to take over other companies and their brands at very high prices, rather than attempt to establish new brands. To establish a new brand, a company usually has to produce an innovative product and then market it effectively. The cost of advertising to launch a new brand can be very considerable. Once a brand is created it needs to be protected. In 1985 the then chief executive of Coca Cola, Roberto Goizueta, decided to relaunch its trade mark drink and replace the 99-year-old formula with a sweeter recipe. Seventy-eight days and over 400 000 protest letters and phone calls later, we are advised by Ward (2005b), "a chastened Mr Goizueta announced the return of the original formula, renamed Coke Classic". Ward states "it remains arguably the greatest marketing disaster in US corporate history". Mr Goizueta's actions had been a reaction to arch-rival Pepsi who had been close to deposing Coke as America's favourite cola. Pepsi had been running television advertisements that showed consumers choosing its sweeter product over Coke in blind taste tests. However, reverting, under protest, to the old formula allowed the company to turn disaster into triumph. Sales of Coke Classic increased dramatically above previous levels and customer loyalty was reinforced. No sympathy is required for Mr Goizueta. He was not fired. He received a \$5 million bonus at the end of 1985 as a reward for increasing the company's stock price by more than a third over the year. Ward advises Coca Cola remains the world's most valuable brand worth \$67.39 billion.

23.9.4 Market strategies

The microchip industry might be argued to be an oligopoly. The industry is interesting from the perspectives of rapid advancements in technology and the behaviour of the competitors in the market to increase market share. Game theory³ is a useful tool to understand the success or otherwise of the different market strategies adopted by the main players. Casual spectators might assume that the industry is a duopoly due to the headline grabbing activities of Intel and AMD, but this is not the case as there a number of "players" in the market. In the last 10 years competitors have used advertising, price-cutting, technology improvements, production and product reliability to improve market share at times with both spectacular and disastrous results. Chip production has been dependent on developments in software, computers, mobile phones and the internet together with growth of the economy. Without understanding the opportunities to be seized and the risks associated with alternative marketing strategies,

³ The branch of mathematics which became known as game theory was developed by John Von Neumann. Game theory provides a way to analyse conflicts of interest mathematically to establish the best cause of action in any situation.

Intel and AMD would not have fared so well; however, they have not always got it right! See Box 23.5.

Box 23.5 The risk of diversification

The microchip market

Intel made the first microprocessor in 1971, which was used by Bowmar to make calculators. Intel is the dominant world supplier of microprocessors, which back in 1995 had an estimated 80% of the \$10 billion market. Its nearest rival, Advanced Micro Devices (AMD), had estimated sales of \$700 million in the same period. Intel and AMD remain sparring partners today. One of the problems that Intel faced back then was that computer manufacturers, such as Compaq and IBM, bought its chips wholesale. These computer companies were sophisticated enough to shop around for the cheapest prices. Other chip manufacturers could, within a few years of a chip being put onto the market by Intel, produce a chip which would perform the same functions. Clone chips tended to be cheaper. In 1993–1994 Intel attempted to get around this problem by advertising its latest mass-market chip, the Pentium, directly to the final customer with the slogan “Intel inside”. The Intel Pentium brand, mentioned in comics and on television talk shows, became a household word soon after introduction. The computer manufacturers were furious. Sales of non-Pentium computers slowed down and manufacturers were left with more stocks of these products than they had anticipated. It also limited their ability to shop around for the cheapest chips. In terms of games theory, Intel realised that pursuing a strategy which increased customer awareness of its product would lead to large revenues and profits than a strategy which left customers thinking that the only branded product they were buying was the computer itself. Intel’s gain was a loss for other chip manufacturers. In the longer term, Intel has realised that it needs to pursue an aggressive strategy of product development. In games theory, a failure to launch new products will allow other manufacturers to gain a technological lead. This would reduce revenue, market share and profit for Intel, while allowing other chip manufacturers to gain these. A race developed between Intel and AMD, which currently has no end in sight. They continuously attempt to increase market share at the expense of each other, through improvements in processor speeds. The two companies have alternately announced product developments.

In August 1999 for instance AMD launched what was claimed at the time to be the world’s fastest and highest-performing microprocessor for personal computers. Just the previous week Intel had unveiled a 600 MHz version of its flagship chip, the Pentium III. AMD said both IBM and Compaq, two of the world’s leading PC manufacturers, had already committed themselves to using its new Athlon chip in some of their machines. AMD said the top version of the Athlon would have a clock speed of 650 megahertz (MHz). Laurianne McLaughlin, senior associate editor, news, at *PC World* magazine stated at the time “it clearly poses real competition to Intel at the high end. It will be very attractive to power desktop users.” At the time, however, many industry analysts remained cautious, as a result of AMD’s previously problematical product launches. Unofficial reports of AMD’s manufacturing appeared to be favourable.

Intel and AMD also strove to secure market share through price. In 1999 California-based AMD found “price war” with Intel painful. The smaller company’s results in the first and

second quarters of 1999 had showed losses and had embarked upon a big marketing push around the Athlon in an attempt to turn around its results. It was helped by an independent assessment of the 600 MHz Athlon, which reported that this chip was, on average, 9% faster than the 600 MHz Pentium III from Intel. AMD named the new chip line the Athlon, to break away from the association with the K6 family of slower, cheaper processors.

The technology race was unrelenting. Only three months later AMD unveiled a new Athlon microprocessor that ran at a faster speed than Intel's latest Pentium III chip. Intel had led the race for the speediest computer chip with its latest Pentium IIIs running at speeds of 733 megahertz. However, the new Athlon chip reached speeds of 750 MHz. The 750 megahertz Athlon chip was the first to be made using AMD's 0.18 micron manufacturing process, which creates transistors with linewidths just 1/500th the width of a human hair. Intel also made chips using its 0.18 micron technology, considered important in a strategy to lower manufacturing costs for the higher profit margin chips. While processor speed often grabs the headlines, more important to the business success of chip manufacturers was the pricing of the chips and the ability to supply them. Intel has had difficulty keeping up with demand for its higher speed Pentium IIIs, particularly its Coppermine processor, a 733 MHz Pentium III chip. AMD said its new Athlon processor would be used by Compaq, IBM and other PC makers, largely in high-end consumer models.

In June 2000, escalating the war with its competitors, Intel unveiled details of its new Pentium 4 processor, which ran at speeds of up to 1.5 gigahertz. Intel claimed its newest chip beat the processing power of the recently announced 1 gigahertz Athlon processor, by rival AMD, and its own 1 gigahertz Pentium III. The problem for Intel was that most existing software required much less processing power than this newest generation of chips. Presenting the new chip at the time, Intel's chief executive, Craig Barrett, argued that faster computers were essential in a world where new generations of internet commerce, gaming and entertainment applications required ever greater processing power. Industry analysts, though, cautioned consumers that there was little reason for them to rush into the shops and upgrade their computers. Users should wait for software developers to catch up with chip makers. Currently, it is mainly professional video editing systems and some financial applications that can potentially make the greatest use of ultra-fast processors. At this time Intel supplied processor chips for about 90% of the world's computers, cementing its dominant position through its close alliance with Microsoft, the maker of the Windows operating system.

In August 2001, AMD gave a profits warning blamed on the slowing economy. The problem is two-fold, Mr Herb told a technology conference in California. On the one hand, sales of flash memory chips – which are at the heart of mobile phones and other consumer electronic devices like digital cameras – look likely to fall 30% or as much as \$100m (£69m) this quarter. On the other, sales of central processing chips for PCs are flat from the previous quarter. AMD had recently gained market share from its arch-rival Intel, but the downturn in the economy had hit technology spending particularly hard, triggering massive price cuts from both companies. From games theory we know that this would hurt both companies. AMD alone cut prices for some product lines by as much as 50%. Intel, meanwhile, continued to claim/that it was seeing a seasonal rise in demand in the second half of the year. The company was betting that its newest and fastest chips, coupled with the launch of Microsoft's new Windows XP operating system, would galvanise millions of users with – by modern standards – elderly, slow machines to ditch them and upgrade.

In October 2001 Intel stuck to its large-scale spending plans, despite the slump in chip sales that had hit both its share price and its bottom line. Intel predicted that its markets would soon recover and remained committed to capital expenditure of \$7.5bn in 2001, with a further \$3.9bn being poured into research and development. "Our strategy here is new products, new technology, building blocks for the internet," said chief executive Craig Barrett. "The internet is still growing. We see it as being the vehicle for our growth over the next five to 10 years," he said. Intel's plans to keep up spending were seen as crucial to boost its market share which was under threat from firms such as Advanced Micro Devices (AMD), Broadcom and 3Com. "We are absolutely deadily focused on growing our market segment share," said Intel Architecture Group's Paul Otellini. The companies were fighting an expensive battle for their stakes in markets that had been shrinking for months. Intel's profits fell 77% during the third quarter of 2001 and its share price has lost 69% in just over a year as the company's traditional markets virtually collapsed. The company predicted that demand would pick up again, in part due to mobile internet developments. This, it says, would bring about growth of 15–20% per year.

In August 2004 Intel announced that it had created a more powerful chip without increasing its size, wrong-footing analysts' warnings that the firm had hit its technical limits. The breakthrough came after Intel managed to shrink the size of its transistors by 30%, enabling more of them to fit on a single chip. That increased the processing power of each standard-sized chip, paving the way for ever more powerful computers. The new device also allowed Intel, still the world's biggest maker of memory chips, to gain a march on its closest competitor Advanced Micro Devices (AMD). This latest development was hailed as further confirmation of Moore's law, a guiding principle of the technology sector for the last 40 years. Intel founder Gordon Moore predicted in the late 1960s that the number of transistors on a chip – and therefore its processing power – would double every two years. (This prediction soon proved too conservative, a few years later Moore had to revise his projection to every 18 months.) "This is evidence that Moore's law continues," Mark Bohr said, Intel's director of process architecture and integration. Intel and its rivals have thrived on their ability to pack more transistors onto a chip, or semiconductor, but sceptics had questioned whether they could maintain the pace of progress. The new chip had been made possible by a process which limits power consumption by parts of the chip, which are not in use, reducing heat emissions, Intel said. AMD has just partnered with IBM to build a new chip factory in Dresden, Germany.

23.10 PRICE ELASTICITY/SENSITIVITY

23.10.1 Elasticity

Elasticity of demand measures the responsiveness of demand to a change in a variable such as price, income or advertising. It measures how much demand changes in percentage terms (in %), compared to the variable. If demand changes more than the variable (in %), it is sensitive or elastic. For instance if demand increases 30% following a 10% price cut, the price elasticity of demand is said to be 3. It is elastic because demand has changed three times more than price has changed (in %). If demand changes less than the variable, it is insensitive or inelastic. For instance if demand changes 5% following a 10% price cut, the price elasticity is 0.5. It is inelastic because demand changes half as much as the change in price.

23.10.2 Price elasticity

Price elasticity is the sensitivity of demand to changes in price. Measured by the percentage change in demand compared to the percentage change in price:

$$\text{price elasticity} = \frac{\% \text{ change in demand}}{\% \text{ change in price}}$$

If demand is not sensitive to price (price inelastic) the business is more likely to increase price to increase revenue, because the increase in price leads to a smaller decrease in quantity demanded (in %). If demand is sensitive to price the business will lower price to increase revenue because a lower price will lead to a larger increase in quantity demanded (in %). Whether an increase in revenue will also increase profit will depend on what happens to unit costs as output changes. If unit costs increase (perhaps because the firm has had to expand capacity or because material costs increased) the profit margin and indeed overall profits may fall. Elasticity is a useful concept as it helps with planning. A business can estimate the impact of changes in price and income on demand. This will allow a business to plan for sales, staffing, cash flow, production and stock levels. However, there is a risk that estimates are incorrect and the buyers do not behave as anticipated. It is not possible to predict all the variables such as changes in income levels, competitors' advertising and advances in technology. Risk mitigation may be accomplished by test marketing, for instance changing the price and measuring the effect. It is only risk mitigation rather than risk removal as it may not be safe to generalise about the results and assume buying behaviour will be the same nationally or internationally.

23.11 DISTRIBUTION STRENGTH

The type of distribution policy adopted by a business depends on the product itself and on other marketing policies. The nature of the product determines to a large extent whether users rely on providers or distributors, as primary sources of technical information and supply availability. If the product is technically complex, users desire a direct relationship with the source of product technology. For industrial products, the source is usually the original equipment manufacturer. However, it could be other suppliers if they have accumulated the necessary technical skills. Caution is exercised over uncontrolled distribution as this is likely to bring with it some serious long-term sales problems. In developing a distribution policy for consumer products for instance it is necessary to examine the relationship between product type, the likely form of distribution and customer buyer preferences. Detailed buyer behaviour is therefore essential in forming distribution policy and an absence of this knowledge is a risk to the business.

23.12 MEASUREMENT

23.12.1 Value-at-Risk

Value-at-Risk (VaR) is one of the most common forms of market risk measurement in the financial sector. VaR measures the worst loss that might be expected over a given time interval, given normal market conditions and with a specific confidence level. The significant issue about VaR is that the fixed probability (the confidence level) that any losses suffered by the portfolio over the holding period will be less than the limit established by VaR. Hence it should also be said that there is also a fixed probability that the losses might be worse. It should be noted that the VaR limit does not give an indication of how severe the losses could be or specify

the worst possible loss. VaR is now recognised as a standard measure of market risk, expressed in terms of the money that might actually be lost. For instance a bank might report that the daily VaR of its trading portfolio is £50 million at the 95% confidence level. Described another way, there is only a five in a hundred chance that a daily loss greater than £50 million will occur, under normal market conditions. The appeal of VaR relates to its ability to provide a consistent and comparable measure of risk across all products and business streams. Cossin (2005) makes the valid observation that unfortunately as risk models become more complex, they sometimes become black boxes to board members. The purpose of the modelling is to inform decision makers, but if the model constructor is unable to communicate how the model arrives at its answers, the board members cannot grasp the statistical basis of the model, or if both description and comprehension are poor, the value of modelling is either diluted or lost altogether, when board members revert to gut instincts.

23.13 RISK RESPONSE PLANNING

There are no hard and fast rules for establishing risk management practices for a business. The golden rule is that the practices adopted should be tailored to suit the business and the market within which it operates. The approach followed should facilitate management discussion of market risk and opportunity and clearly set out how market risk management will be performed throughout the business. There should be a clear designation of roles and responsibilities and hence who is responsible for each aspect of market risk management within the company. Authority levels should be determined for implementing risk management actions. These will commonly entail considerable sums of money and be part of a broad strategy such as advertising, research and development, product development and diversification. An integral part of the practical risk management steps will involve risk identification, measurement and reporting. For broad comprehension and acceptance of the approach adopted, the metrics, methodologies and assumptions within any analysis must be transparent. An insurance policy must be established which defines the type of risks that are to be insured, the target risk levels and the products and strategies that can be used.

23.14 SUMMARY

As with the other classes of risk examined, in a fully developed enterprise risk management process, market risk must be addressed as a primary source of risk and opportunity. Clearly market risk has a strong overlap with several of the other classes of risk such as technological, economic and social risk. Of primary importance to any understanding of market risk for a business is comprehension of the market structure to understand both the opportunities and the threats from existing and potential competition. Hence the market forecasting process is crucial to addressing sources of risk. It must be acknowledged that (1) demand is not homogeneous but may be disaggregated into a series of distinct submarkets and segments and (2) a competitive strategy increases the importance of product development which leads to a more rapid product obsolescence and a shortening of product lifecycles.

It could be argued that there is a fundamental inevitability about the accelerating rate of change. An understanding and acceptance of change is crucial to long-run survival and success. The concept of the product lifecycle was examined and while this conventional representation must not be taken too literally (as the length of the various phases may vary considerably) it provides a good forecasting and risk management tool. As competition is a major source of

risk monitoring competitive activity has assumed increasing importance. This is particularly so in recent years, with the growing popularity of what is termed “the fast second”. This relates to firms depending more on their ability to copy or improve on a new product and cash in on the growth phase than on being the first to market with a new product. Game theory was explored in terms of the risks associated with pricing strategy particularly in an oligopoly and the development of brands to create competitive advantage. Similarly price elasticity is examined to explore the use of price to increase demand and hence income; however, there is risk attached to estimating how the variables such as competitor behaviour will change. Value-at-Risk (VaR) is examined as a way of measuring market risk exposure.

23.15 REFERENCES

- Anderton, A. (1991) *Economics*, 2nd edition 1995, Causeway Press Limited, Lancashire, UK.
- Barwick, P. and Meehan, S. (2004) *Simply Better: Winning and Keeping Customers by Delivering What Matters Most*, Harvard Business School Publishing.
- Bradley, F. (1995) *Marketing Management – Providing, Communicating and Delivering Value*, Prentice Hall, Europe.
- Carter, M (2005) “Orange Rekindles the Emotional Ties”, *Financial Times*, Tuesday, 20 September 2005.
- Cookson, C. (2005) “Industry Shakes off Lethargic Image”, *Financial Times*, Monday, 18 April 2005.
- Coosin, D. (2005) “A Route Through the Hazards of Business”, FT Mastering Corporate Governance, Friday, 10 June.
- Friend, G. and Zehle, S. (2004) *Guide to Business Planning*, Profile Books Limited, London, p. 48.
- Johnson, G. and Scholes, K. (1989) *Exploring Corporate Strategy*, Prentice-Hall.
- Mackintosh, J. and Milne, R. (2005) “The Little Car that is Causing Big Problems”, *Financial Times*, Friday, 4 March 2005.
- Marcelo, R. (2005) “Budget Airlines Set to Take Over Indian Skies”, *Financial Times*, Wednesday, 27 April 2005.
- Möller, K.E. and Antilla, M. (1987) “Marketing Capability in Small Manufacturing Firms: A Key Success Factor?”, paper in contemporary research in marketing, the 11th Annual Conference of the European Marketing Academy, York University, Toronto.
- National Industrial Conference Board (1964) *Why Products Fail*, Conference Board Record, October.
- Porter, M.E. (1980) *Competitive Strategy*, The Free Press, New York.
- Ward, A. (2005a) “A Better Model? Diversified Pepsi Steals Some of Coke’s Sparkle”, *Financial Times*, Monday, 28 February 2005.
- Ward, A. (2005b) “Classic Error that Continues to Make Bubbles 20 Years on”, *Financial Times*, Monday, 25 April 2005.

The previous chapter examined market share risk. This chapter examines those aspects of society that impact on business performance over which businesses have no ability to control and minimal opportunity to influence. Existing and emerging trends in lifestyle choices and social attitudes are explored in terms of the risks and opportunities emanating from the evolving characteristics of the workforce. Against a backdrop of an inexorable increase in living standards, changes are occurring in drinking, smoking, eating and exercise habits. Various methods of classifying the UK workforce are considered, with particular attention being paid to socio-economic groups. Of course the demographic and socio-cultural dimensions make an important contribution to the PEST assessments discussed in Chapter 10. The structure of this chapter is illustrated in Figure 24.1.

24.1 DEFINITION OF SOCIAL RISK

What is social risk? Social risk from a business perspective emanates from changes in society, which create changes in demand, open new market opportunities or alter a business's responsiveness to demand, as a consequence of the characteristics of its workforce. The availability, education, health and outlook of the workforce all influence a business's performance capabilities. Workforces are assumed to be "chameleon" in nature taking on the habits, behaviours and culture of the society within which they work and live. Social risk is defined here as a society's impact on business and not vice versa. Hence social risk in this context should not be confused with (1) corporate social responsibility,¹ (2) supporting vulnerable individuals or households who are susceptible to damaging welfare losses, (3) government social policy, social security and welfare state policy, or (4) social risk management as defined by the World Bank Group.²

24.2 SCOPE OF SOCIAL RISK

The sources of risk that are considered to be embraced within the term "social risk" are recorded below.

¹ The government views corporate social responsibility (CSR) as the voluntary actions that business can take (over and above compliance with minimum legal requirements) to address both its own competitive interests and the interests of wider society. The government is looking to businesses to contribute to the government's sustainable development goals. However, there is still some debate as to what CSR means. As declared in the government paper "Corporate Social Responsibility, a Government update", published in May 2004 by the Department of Trade and Industry, "we remain a long way from consensus on what it means and its value. Some suggest that it is just about glossy reports and public relations. Some see it as a source of business opportunity and improved competitiveness. Some see it as no more than sound business practice. Others see it as a distraction or threat. Is it a framework for across the board regulation of all of the relationships between business and the rest of society, nationally and globally?" (www.csr.gov.uk). Government anticipates the debate will continue.

² The World Bank Group defines social risk management (SRM) as "a framework that can be used to analyse the sources of vulnerability, how society manages risks and the relative costs and benefits of various public interventions on household welfare". Where vulnerability describes the exposure to uninsured risk leading to a socially unacceptable level of well-being in the future. As such, SRM addresses how vulnerable individuals and households can be helped to better manage risks and become less susceptible to damaging welfare losses (www.worldbank.org/srm).

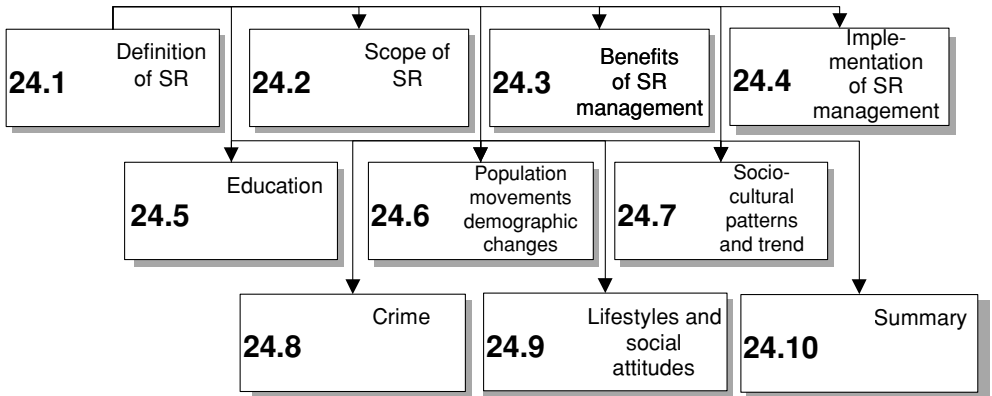


Figure 24.1 Structure of the Chapter 24

- Poor standard of education of new recruits particularly with regard to language skills.
- Linguistic barriers to international trade.
- Shrinking percentage of the working population that is of working age.
- Misaligned marketing strategy through a lack of appreciation of the new socio-economic groups, their geographical dispersion, income range or the percentage of the overall population that they represent.
- The value of the home improvement market and the way it responds to interest rates.
- Growing obesity (particularly among teenagers) and its potential impact on the future workforce.
- Loss of market share through lack of attention to the “grey market”.

24.3 BENEFITS OF SOCIAL RISK MANAGEMENT

Social risk management affords a business benefits such as, but not limited to:

- Understanding the risks to its business premises and personnel from crime including theft, arson, vandalism and violence.
- Identifying the risks associated with employment and in particular the level of education of new recruits and the promotion of a proactive approach to understanding and addressing any shortcomings, particularly with regard to foreign language capabilities.
- Comprehending the evolving socio-economic groups and the changes this makes to market sectors and hence product markets.
- Identifying trends such as public response to increases in the interest rate and corresponding decrease in spending and diminishing retail sales, such as the home improvement market.

24.4 IMPLEMENTATION OF SOCIAL RISK MANAGEMENT

The development of a sound system will depend on attention to a number of issues, such as:

- Growing environmentalism
- Growing interest in health and fitness
- Concern over obesity

- Growing concern about the ethics of organisations
- More leisure time
- Earlier retirement
- More women in the workforce
- Increasing improvement in living standards
- Slow population growth
- Ageing population

24.5 EDUCATION

Education is seen as a contributor to economic growth. Government education policies have attempted to deal with unemployment and our lack of competitiveness in the market place. In a speech in 1976 the Labour Prime Minister James Callaghan suggested that the education system was not giving enough concern to the needs of industry and it should be made more accountable to popular wishes and desires.

National education within the UK is important to businesses as the quality of education of school and college leavers and graduates from university directly impacts on their ability to compete in the market place. Government attention on education fluctuates but events in the market place and the status of the economy bring the subject to the fore. Economic developments, in particular the persistence of high unemployment and the contraction of manufacturing industry, have repeatedly forced questions on the content and purpose of education onto the agenda of public debate. The report published by CILT³ entitled *Talking World Class, the Impact of Language Skills on the UK Economy* brought into sharp focus the detrimental impact of the UK's complacency over our inability to speak other languages (CILT 2005). Sir Trevor McDonald in his introduction to the CILT report states:

The growing internationalisation of business life in the global economy is well documented. Britain's economy has always benefited from foreign trade, but now, with new patterns of business ownership and the growing creation of strategic alliances across borders, overseas connections are becoming part of the very fabric of economic life. What effect are these trends having on our competitiveness, and where will they take us in the future? With the widespread use of English in international business, it is easy to overlook linguistic and cultural factors. Yet these have a crucial effect – surveys of exporting businesses show that nearly half have experienced linguistic or cultural barriers and one in five have lost business as a result.

A survey of 28 countries published by the European Commission aggregated all non-mother tongue languages spoken and the UK came out last! (Europa 2005). A British Chamber of Commerce survey in 2004 found that 80% of export managers couldn't competently conduct dealings in even one foreign language (Chamber of Commerce/LSC 2004). The Grant Thornton International Business Owners Survey 2004 found that the proportion of UK executives capable of negotiating in more than one language was half the UK average and well below the global average (Grant Thornton 2004). A further report prepared by CILT has answered the question "does our poor performance in languages really matter?" by capturing the downside of employees' inability to communicate in the native tongue of potential customers, see Box 24.1 (Hagen 2005).

³ CILT is the government's recognised centre of expertise on languages. The organisation's mission is to promote a greater capacity among all sectors of the UK population. It is a registered charity and it derives its finance from central government and other secondary sources.

Box 24.1 S. Hagen

How does poor communication lead to loss of business:

- Difficulties with agents and distribution
- Inability to make effective contacts at trade fairs and exhibitions
- Poor translation causing hilarity or confusion
- Inability to capitalise on opportunities
- Lack of cultural affinity
- Lack of confidence
- Phone and switchboard enquiries not followed up
- Customer unable to access information needed about the product or service

David Cameron (Conservative Education spokesman) said the decline in language learning was “not acceptable for a country of Britain’s standing in the world. Not only does this harm the prospects of UK graduates it also puts British Industry and economy at a disadvantage.”⁴

24.6 POPULATION MOVEMENTS – DEMOGRAPHIC CHANGES

Populations can be perceived in two broad ways: first, as a market and second, as a source of labour. Thus changing demographics have both market and resource implications for businesses. Demographics is the study of how populations change over time. Demographers analyse changes in births, deaths and the age composition of the population as well as patterns of disease and other health related issues. In the UK, the Government Actuary Department (GAD)⁵ collects population statistics and strives to produce projections of how the population will change over time, particularly over short-term horizons. Population changes are important to businesses as they affect demand for goods and services, especially in the medium and long term. Careful analysis of these patterns and trends is therefore important to marketing managers in business and planners in government. Populations change naturally overtime. For any given period, the change in population is given by:

$$\text{population change} = \text{births} - \text{deaths} + \text{net migration}$$

Net migration is the difference between the number of people entering the country to live (immigration) and the number leaving permanently (emigration). Since the 1980s net migration in the UK has been positive and is expected to remain so for at least the immediate future. However, what concerns many western countries is not such much the size of their population but the problems associated with their ageing population. The percentage of those over 65 years of age is gradually increasing. The population is ageing as more people are living longer and there is a fall in the birth rate. Life longevity is considered to be the result of better health care, improved standards of living, and improved nutrition and housing. The rise in the life expectancy of the old has been accelerating over the past two decades. For example, in 1980 male expectancy at 60 was a further 16 years. In 2004 it was a further 20 years. The United Nations has observed that the median age is increasing across the whole world with, not surprisingly, a greater increase in the more industrialised economies. This has major

⁴ BBC News report (2005) “Language Gap ‘Leads to Trade Gap’ ” Tuesday, 5 July 2005, <http://news.bbc.co.uk>.

⁵ Further information on the Government Actuary Department can be found on their web address: www.gad.gov.uk.

implications for international business in terms of productive location (available supply of labour of working age) as well as the range of products likely to be in demand. It also has implications for the government as state pensions are funded by contributions of current workers.

The proportion of workers to pensioners is known as the support ratio, sometimes expressed simply as tax payers per pensioner. Therefore if there are more and more pensioners and fewer and fewer workers to support them, it will be difficult to maintain the real value of pensions. Currently in the UK there are four “workers” per pensioner, giving a support ratio of 4:1. In 50 years’ time this is expected to fall to somewhere around 2.5:1, a situation described as the “demographic time bomb” (Griffiths and Wall 2005). The pattern would appear to be the same outside of the UK. A study into the impact of an ageing workforce on labour markets by the Organisation for Economic Cooperation and Development warns of rising wage inflation, increased pressure on public finances and declining growth unless this demographic situation is addressed. The report considers that in Europe the ratio of active to inactive workers is expected to fall to 1:1 by 2050. It estimates that GDP growth in OECD countries will fall by 30% down on 1970–2000 unless more employees work longer to overcome skill shortages (Taylor 2005).

24.6.1 The changing market

Although most western populations are expected eventually to decline, this will not happen for many years to come. At one time marketing departments largely ignored the older generation, stereotyping them as frail inactive individuals with little spending power. However, market analysis is waking up to the “grey market”, a term used to describe the over 50s, which is now in widespread use. Some 44% of Britain’s adults are over 50 and this proportion is rising rapidly. It is estimated that by the end of 2005, this group referred to as the third generation will have increased by more than 13% in just 10 years. Estimates vary but it is commonly considered that this population is set to increase to one third of the population by 2020. This demographic group is not only large it is also rich. It is currently 20 million strong, growing fast and holds 80% of the nation’s wealth. It has the largest proportion of outright homeowners and more savings than the adult population at large. House price increases and maturing life insurance policies have added to this wealth. One of the key ways this group is spending its time and money is on holidays with the majority taking two holidays a year. The older generation now accounts for a substantial proportion of the UK tourism market, approximately 22% of domestic holidays and 26% of foreign holidays.

24.7 SOCIO-CULTURAL PATTERNS AND TRENDS

Most societies have some form of hierarchy, which ranks people according to their standing in society. Traditionally, UK society was seen to exist of three “classes”: working class, middle class and upper class, with most of the wealth and influence concentrated in the land-owning aristocratic upper classes. It is estimated that the richest 1% held around 70% of the UK’s wealth in 1911. Reference to these three classes is now rarely made. Times have changed and inherited wealth is not the dominant factor it once was. A survey conducted in 2004⁶ suggested that of the 1000 wealthiest people in England, 751 were self-made millionaires as opposed

⁶ The Sunday Times Rich List, 18 April 2004, www.timesonline.co.uk/article.

Table 24.1 National Statistics Socio-Economic Classification (NS-SEC)

| The National Statistics Socio-Economic Classification Analytic Classes | | |
|--|--|---|
| 1 | Higher managerial and professional occupations | |
| | 1.1 | Large employers and higher managerial occupations |
| | 1.2 | Higher professional occupations |
| 2 | Lower managerial and professional occupations | |
| 3 | Intermediate occupations | |
| 4 | Small employers and own account workers | |
| 5 | Lower supervisory and technical occupations | |
| 6 | Semi-routine occupations | |
| 7 | Routine occupations | |
| 8 | Never worked and long-term unemployed | |
| Source: www.statistics.gov.uk/methods_quality/ns_sec/default.asp | | |

to 249 who had inherited their wealth. Of the 751 self-made millionaires it was interesting to note that despite the press coverage, only eight were from the internet services sector. It is now estimated that in 2001 the richest 1% hold 23% of the UK’s wealth.

The Office for National Statistics (ONS), the government department that provides UK statistical and registration services, elected from 2001 to use the National Statistics Socio-Economic Classification (NS-SEC) for all official statistics and surveys. The NS-SEC is an occupationally based classification but has rules to provide coverage of the whole adult population. The information required to create the NS-SEC was occupation coded to the unit groups (OUG) of the Standard Occupational Classification 2000 (SOC2000) and details of employment status (whether an employer, self-employed or employee; whether a supervisor; number of employees at the workplace). The version of the classification, which will be used for most analyses (the analytic version), has eight classes, the first of which can be subdivided. See Table 24.1.

The National Statistics Socio-Economic Classification (NS-SEC) was used in the last national census⁷ carried out on 29 April 2001. (Plans are being made to hold the next one in 2011.) Hence the census adopted the eight categories of social class referred to above.

Based on the labour force, Table 24.2 gives percentages of working age people in each socio-economic class, based on the National Statistics Socio-Economic Classification (NS-SEC).

Studies have found that there is little mobility between socio-economic classes; children born in the 1970s have tended to take similar jobs to their parents and also marry within the same socio-economic class. Around 70% of the earnings of children of wealthier parents

⁷ A census is a survey of all people and households in the country. It provides essential information from national to neighbourhood level for government, business, and the community.

Table 24.2 Population mix assessed by the NS-SEC

| Socio-economic classification ¹ of working-age ² population, summer 2003 | |
|--|-------------------|
| Social Class (NS-SEC) | Percentage |
| Higher managerial and professional occupations | 10.8 |
| Lower managerial and professional occupations | 22.2 |
| Intermediate occupations | 10.3 |
| Small employers and own account workers | 7.7 |
| Lower supervisory and technical occupations | 9.4 |
| Semi- routine occupations | 13.3 |
| Routine occupations | 9.8 |
| Long-term unemployed ³ | 16.5 |
| Total working-age population (=100%) thousands | 37248 |
| <i>1 Based on the National Statistics Socio-Economic Classification (NS-SEC).</i> <i>2 Men aged 16 to 64 and women aged 16 to 59.</i> <i>3 Includes those who have never worked.</i> | |
| <i>Source: National Statistics (www.statistics.gov.uk) summer 2003 survey www.statistics.gov.uk/StatBase/Expodata/SpreadSheets/D7665.xls</i> | |

can be attributed to “social capital”, that is the networks and influence derived from family connections, upbringing, background, friends, membership of clubs and societies as well as marriage.

24.8 CRIME

Table 24.3 provides national crime figures by category for the last four years. National Statistics breaks these figures down by region, which enables companies to consider crime (as one of many factors) in determining the site of new or relocated premises. Crime influences investment from overseas, a manufacturer’s choice of location for new production plants and families’ choice of location for a home. There is a clear variation between towns, cities and districts across the UK in terms of their desirability as places of residence or locations for businesses. The Channel 4 programme entitled *The Best and Worst Places to Live in the UK* highlighted striking differences between areas across the UK (Frith 2005). Two areas stood out in contrast: Guildford in Surrey and Hackney in east London. In Guildford 40% of the population were described as being educated to degree level, the average household income was over £35 000 and rolling countryside surrounded the town. Hackney, however, was home to the “murder mile”, one third of all residents of working age had no qualifications, the cost of crime had reached £171 million a year and urban development surrounded the district.

From Table 24.3 it can be seen that violence against the person, sexual offences, violent crime and criminal damage are all on the increase.

Table 24.3 Recorded crimes within England and Wales years 01/02 to 04/05.

| Recorded crimes detected by the police by offence group: England and Wales | | | | |
|---|---------------|---------------|---------------|---------------|
| Offence Group | 2001/02 | 2002/03 | 2003/04 | 2004/05 |
| Violence against the person | 650.3 | 834.9 | 955.8 | 1035 |
| Sexual offences | 41.4 | 48.6 | 52.0 | 60.9 |
| Violent crime | 813.1 | 991.6 | 1109.0 | 1184.7 |
| Burglary | 878.5 | 888.8 | 818.6 | 680.0 |
| Theft and handling stolen goods | 2267.0 | 2365.0 | 2268.1 | 2027.5 |
| Fraud and forgery | 314.9 | 330.1 | 318.0 | 278.9 |
| Criminal damage | 1064.5 | 1109.3 | 1205.6 | 1185.3 |
| Drugs | 121.4 | 141.1 | 141.1 | 142.3 |
| Other | 65.7 | 72.5 | 74.1 | 63.9 |
| Total | 5525.0 | 5898.6 | 5934.6 | 5562.7 |
| <i>Source:</i> National Statistics (www.statistics.gov.uk) | | | | |

24.8.1 Key facts

- Humberside had the highest rate of recorded crime of all the police force areas in England and Wales in 2003/04, at 163 per 1000 population, while Dyfed-Powys, at 63 per 1000, had the lowest.
- Crimes involving firearms in England and Wales more than doubled between 1997/98 and 2002/03, to over 10 000.
- In 2003/04, women were nearly three times as likely as men in England and Wales to be very worried about physical attack (17% compared with 6%), yet men were more likely than women to be a victim of violent crime (5% compared with 3%).
- Over 7 in 10 of both men and women previously convicted for theft and handling stolen goods in England and Wales were reconvicted within two years of their discharge from prison in 1999.
- Between 1993 and 2003 the average prison population in England and Wales rose by two thirds, to 73 000.

24.9 LIFESTYLES AND SOCIAL ATTITUDES

24.9.1 More home improvements

Businesses in the retail sector supplying the home improvement market are susceptible to swings in demand which can have a dramatic effect on bottom-line performance in a market where annual consumer spending exceeds £100 billion. An example of such a swing was a fall in retail sales in the middle of 2005 which led to retailer B&Q shedding 400 jobs.

There are a number of drivers for home improvements. Findings from Sainsbury's Bank Home Improvement Index⁸ (reported in their press release on 7 February 2005) found that 54% (6.16 million people) of those questioned as to why they were planning home improvements, declared the main reason was to make their homes more comfortable to live in. This was followed by 24% (2.73 million) who said their properties were in need of necessary repairs and 10% (1.17 million people) who needed more space. The need for an increase in space it is thought is driven by the general trend in the increase in house prices compelling young people to stay in the family home longer, delaying marriage. Some 335 000 people would be making improvements to increase the value of their homes before putting them on the market to sell. The research discovered that people intended to spend £57 billion on improving their homes over the first six months of 2005 (a significant reduction on the £80 billion they planned to spend during the period June 2004 and December 2004) and that the average spend per DIY project would be £5041. Reflecting the continuing borrowing culture, of the £57 billion that would be spent on home improvements, £4.04 billion of this would be financed through personal loans, £3.52 billion through credit cards, £2.84 billion through remortgaging and £1.93 billion through overdrafts.

24.9.2 Motherhood

Changing working patterns for women mean that motherhood is delayed. In the UK the average first-time mother in 1971 was 24 years old; in 2004 she was over 27 years old, today that figure is even higher. The abortion rate hit a record high in 2004 according to Department of Health figures published in July 2005 (Frean 2005). Those working in the family planning field predicted these figures would continue to rise as women increasingly regarded having an abortion as a lifestyle choice. The rate was highest among those aged 18 to 24, where terminations were at 32 per 1000 women. Frean reported that Ann Furedi, chief executive of the British Pregnancy Advisory Service (Britain's leading abortion provider), considered these figures to be representative of a growing trend of women in this age bracket opting to end unwanted pregnancies – most women are 29 before they have a child and the increase in abortion rates of women aged 20 to 24 reflects that. Furedi said: "women today want to plan their families and when contraception fails they are prepared to use abortion to get back in control of their lives". Motherhood is just one among many options open to women and it is not surprising that younger women want to prioritise other things. She added that nowadays women who want children want fewer of them later in life. Around one in five women currently reaching the end of their fertile life are childless. This compares to one in 10 women born in the mid-1940s. Many parents now in their late 30s and 40s (often described as the "sandwiched generation") are still raising children, at a time when their own parents are increasingly in need of support. Women are now more prevalent in the workplace and this trend is set to increase.

24.9.3 Health

Since 1987 disposable income of the top 10% of earners has tended to grow faster than the bottom 10% of earners (Griffiths and Wall 2005). However, the divide between the ends of the socio-economic spectrum in health terms is more pronounced. A paper published in the

⁸ www.thepressdesk.com/sainsburys_new/pressrelease.php?releaseid=3097.

British Medical Journal (BMJ) just before Christmas 2000⁹ argued that in inner London the health gap between the rich and poor was as wide in 2000 as it was in Charles Dickens' time. On first hearing, this is difficult to comprehend. The authors of "The Ghost of Christmas Past: Health Effects of Poverty in London in 1896 and 1991" argued that their study showed that the passage of 100 years had had "almost no impact on the patterns of inequality in inner London and on the relationship between people's socio-economic position and their relative chance of dying". The study compared the extent to which patterns of mortality in London at the end of the 20th century could be predicted from late 19th century patterns of poverty in the capital.

The authors take their starting point from the social survey conducted by Charles Booth in 1886, which he then significantly expanded over the following years. Booth, a wealthy English ship owner and social reformer, published his survey in 17 volumes as the *Life and Labour of the People of London* between 1889 and 1903. Booth's findings were produced with the aid of a series of "poverty maps", giving a street-by-street picture of deprivation in the capital. His survey showed that more than 31% of London's population lived in poverty. The *BMJ* paper matched Booth's poverty maps to modern-day records based on the 1991 census, and in doing so, was able to compare patterns of social deprivation. "Contemporary mortality from diseases which are known to be related to deprivation in early life (stomach cancer, stroke, lung cancer) is predicted more strongly by the distribution of poverty in 1896 than that in 1991." The study concluded that it remained a fundamental social fact that people living in poverty-stricken neighbourhoods would die earlier than those living in rich areas. This fact was "so robust that a century of change . . . has failed to disrupt it". Danny Dorling, one of the paper's authors and at the time Professor of Quantitative Human Geography at Leeds University, told the press, "The most remarkable thing is how 100 years of social policy have failed to narrow the gap between rich and poor." The *BMJ* paper concluded, "The key message of A Christmas Carol – that redistribution of wealth reduces inequalities in mortality – is as relevant today as when it was written 150 years ago; the fact that inequalities in health persist and match the 19th century pattern of inequalities in wealth so well, suggests that the message has yet to be heeded."

24.9.4 Less healthy diets

Health experts are alarmed at the unhealthy lifestyles of children in the UK. Doctors attending the National Obesity Forum conference in London in 2004 called for smaller portions and for play areas for children. Professor Thomas Wadden, of Pennsylvania University, said: "People, particularly children, are being 'swept along' with the environment [and] obesity is always treated as if people have a lack of will-power. But we live in a society where there is a high-fat, high-sugar diet and low physical activity." He said, around 22% of adults in the UK were obese and the same proportion again were overweight. "It's an epidemic where everyone is being affected." He considered society had to make it easy for people to make the right choices.

More recently a British Medical Association report issued in 2005 called for a junk food advertising ban and rules for the nutritional balance of school meals and pre-prepared food. The BMA warned that without strong action, children would increasingly develop adult diseases such as type-2 diabetes, cancer and bone problems. In 2005 it has been estimated that in the UK, about one million children under 16 are now obese. In addition the BMA's Board of

⁹ The *BMJ* paper "The Ghost of Christmas Past: Health Effects of Poverty in London in 1896 and 1991", reported by Keith Lee in "The Ghost of Christmas Past", 29 January 2001, www.wsws.org/articles/2001/jan2001/pov-j29.shtml, can be read in full at <http://www.bmj.com/cgi/content/full/321/7276/1547>.

Science has warned that if current trends continue, it is estimated at least one fifth of boys and a third of girls would be obese by 2020. The BMA report called for the government to intervene in a range of areas, including schools, the food industry and advertising. Unhealthy children will grow up to be unhealthy adults. Hence there is a concern that businesses will experience sickness levels and lost man-days that will far exceed current levels.

24.9.5 Smoking and drinking

Government figures show that the proportion of adults who smoked cigarettes fell substantially in the 1970s and the early 1980s – from 45% in 1974 to 35% in 1982. After 1982 it declined gradually until the early 1990s, since when it has levelled out at 26 to 28%. While men are still more likely than women to smoke cigarettes, the gap has narrowed. In 1974, 51% of men and 41% of women smoked. In 2003/04 28% of men and 24% of women were cigarette smokers. It would appear from the statistics that cigarette smoking is still more common among adults aged 20 to 34 than other age groups. In 2003 36% of adults aged 20 to 24 and 34% of adults aged 25 to 34 were smokers compared with 15% of those aged 60 and over. The proportion of men who were heavy smokers (on average 20 or more cigarettes a day) fell from 14% in 1990 to 10% in 1998. Among women the proportion fell from 9% to 7% over the same period. Since then the proportions have remained virtually unchanged. The incidence of lung cancer in males has fallen by more than 40% over the past 20 years, mainly as a result of the earlier decline in smoking. There is a pattern across society of smoking habits. In 2003/04, smoking was most common among adults in routine and manual households (35% of men and 31% of women) and least prevalent among those in managerial and professional households (20% and 17% respectively).

The government's statistics illustrate that in 2003/04, 40% of men and 23% of women exceeded the recommended daily benchmarks for sensible drinking on at least one day in the previous week. Heavy drinking is defined as over eight units a day for men and six units a day for women. Early patterns indicated that drinking by men was more common than women. Heavy drinking among men changed little between 1998 and 2002/03, but rose from 21% in 2002/03 to 23% in 2003/04. Among women, the proportion of heavy drinkers stayed at 10% from 2000/01 to 2002/03, following a rise from 8% in 1998. In 2003/04, the proportion of heavy women drinkers was 9%. Heavy drinking was also more common among young people: 37% of men aged 16 to 24 but only 6% of men aged 65 and over had drunk heavily over the same reference period. Among women aged 16 to 24, 26% had drunk heavily on at least one day during the previous week compared with only 1% of women aged 65 and over. These statistics lean towards claims of binge drinking among 16 to 24 year olds. Hence there has been concern among government agencies over relaxation of the licensing laws relating to opening hours and how this may exacerbate excessive drinking. The risk for businesses is that drinking habits lead to absenteeism, poor performance, accidents and behavioural problems. Sustained problems of excessive drinking may lead to long-term illness. On the reverse side of the coin an increase in the popularity of drinking increases demand for suppliers in the brewing industry.

24.9.6 Long working hours

Studies have found that working long hours can greatly increase employees being exposed to the risk of suffering injury or illness. Research by the University of Massachusetts¹⁰ found that workers who do overtime are 61% more likely to become injured or ill, once factors such as age

¹⁰ BBC News report (2005) "Long Working Hours 'Health Risk'", Wednesday, 17 August 2005, <http://news.bbc.co.uk>.

and gender were taken into account. Plus working more than 12 hours a day raised the risk by more than a third. The study of US records from 110 236 employment periods found a 60 hour week carried a 23% greater risk. The study looked at data from 1987 to 2000. Report co-author Allard Dembe said risk was not necessarily associated with how hazardous the job was. "Our findings are consistent with the hypothesis that long working hours indirectly precipitate workplace accidents through a causal process, for instance, by inducing fatigue or stress in affected workers." Also he said the findings, published in the *Occupational and Environmental Health* journal, supported initiative such as the 48 hour European Working Time Directive to cut the number of working hours. From the records, researchers found 5139 work-related injuries and illnesses, ranging from stress to cuts, burns and muscle injuries. More than half of these injuries and illnesses occurred in jobs with extended working hours or overtime. The researchers concluded not surprisingly that the more hours worked, the greater the risk of injury.

24.9.7 Stress levels

Stress is an adverse reaction people have to excessive pressure. It is the duty of employers to make sure that employees are not made ill by their work. Stress can make employees ill. The costs of stress to a business may show up as high staff turnover, an increase in sickness absence, reduced work performance, poor time keeping and more customer complaints. Stress in one person can lead to stress in other staff who have to cover for their colleague. Employers who don't take stress seriously may leave themselves open to compensation claims from employees who have suffered ill health from work-related stress. Outward signs of stress in individuals are changes in a person's mood or behaviour such as irritability, deteriorating relationships with colleagues, indecisiveness, absenteeism or reduced output. Those suffering from stress may also smoke or drink alcohol more than usual or even turn to drugs. They may, not surprisingly, complain about their health, which may suffer in a number of ways.

Stress leads employees to drink and is considered that British people spend more money on alcohol to help them cope with stress than any of their European counterparts. A study¹¹ indicated that stress-related spending on drink in the UK came to almost £21bn in 2001, compared with just over £90bn for the rest of Europe put together. The primary causes behind stress were found to be work and commuting. To ease the pressure, employees turn to alcohol, as well as other pampering products. The survey indicates more people buy alcohol than any other type of product when they want to wind down. After alcohol comes ready-made meals, hot drinks and personal care items. Datamonitor predict that alcohol sales across Europe will reach £94.8bn by 2006, and £22.3bn in the UK. Andrew Russell, the report's author, said: "Work and commuting are the two most stressful activities in consumers' lives and both of these are set to increase."

24.9.8 Recreation and tourism

Living standards, disposable income and the amount of time available for leisure pursuits for the working population has a direct impact on the amount of time spent on recreation, sports wear, sport and tourism. This includes fitness centres, sports centres and clubs, attendance at

¹¹ BBC News report (2002) "Stressed Britons 'Turn to Drink'", Friday, 28 June 2002, <http://news.bbc.co.uk>.

sports fixtures and holidays and the whole of the tourist industry. The tourist industry includes tourist operators, hotels, airlines and airports.

24.10 SUMMARY

This chapter described the social threats and opportunities that impact businesses as a result of a combination of risks emerging from the characteristics of the workforce and opportunities arising from demand from products and services to meet social needs. For the majority, the standard of living is constantly improving and as a result spending patterns change to reflect disposable income. The lifestyle habits of employees and their priorities reflect on the attributes of the workforce. The health of the workforce in particular is considered to directly impact on business performance. When the smoking, drinking and/or eating habits of any employee are excessive, it can have a debilitating effect on their ability to perform through loss of concentration, energy and commitment. In extreme cases it can lead to long-term health problems and frequent absences from work due to sickness. While employers are sympathetic, it can be very disruptive presenting repetitive resource management difficulties.

While the English have a propensity to work long hours (unlike some of our European cousins) it is not always productive as tiredness can lead to accidents and injuries. Employers also need to ensure that their staff are not under excessive pressure, which can lead to stress. The visible signs of stress can surface as changes in behaviour such as irritability and absenteeism and, where pronounced, long-term sickness. Employees deal with stress in different ways, with some drinking or smoking more and in some cases taking drugs. It is considered that British people spend more money on alcohol to help them cope with stress than any of their European counterparts.

As a nation our reluctance to learn foreign languages translates into poor linguistic skills and significantly reduces our ability to compete internationally for overseas trade. Regional crime figures may influence where workers move to and where businesses establish themselves. Regional variations in crime figures directly translate into distinguishable regional insurance costs for home, car and business premises insurance.

The home improvement market was singled out for examination as a visible sign of lifestyle trends due to its size (annual expenditure) and its tendency to act an economic barometer, as it is impacted by interest rates, the housing market and consumer confidence. The home improvement market is always buoyant when the house market is very active as home owners are buying materials to improve their home to move up the housing ladder and those that have recently bought a new home commonly redecorate to tailor their property to their own tastes.

Changes in social trends (in terms of tastes, disposable income and amount of free/non-working time) has a clear crossover with technology and marketing. Changing interests in music, how it is purchased and how it is listened to, radically change markets for music playing devices.

24.11 REFERENCES

- CILT, the National Centre for Languages (2005) "Talking World Class, the Impact of Language Skills on the UK Economy", CILT, London, www.cilt.org.uk.
Chamber of Commerce/LSC (2004) *The Impact of Foreign Languages on British Business*, London.
Europa (2005) Eurobarometer, as published on the Europa website www.europa.eu.int/comm/education/policies/lang/languages/lang/europeanlanguages_en.html.

- Frean, A. (2005) "Abortions Soar as Careers Come First", *The Times*, Thursday, 28 July 2005.
- Frith, M. (2005) "North-South Divide Emerges Over the UK's Best Places to Live", *The Independent*, Tuesday, 9 August 2005.
- Grant Thornton (2004) *International Business Owners Survey*, London.
- Griffiths, A. and Wall, S. (2005) *Economics for Business and Management, a Student Text*, Pearson Education Limited, Harlow, England.
- Hagen, S. (2005) CILT, the National Centre for Languages (2005) "Language and Culture in British Business", CILT, London, www.cilt.org.uk.
- Taylor, A. (2005) "Global Growth to Fall Unless People Work Longer", *Financial Times*, Tuesday, 11 October 2005.

Appendix 1

Successful IT: Modernising Government in Action

This appendix should be read in conjunction with Section 5.3.

In terms of tools and techniques, the government report entitled *Successful IT: Modernising Government in Action* recommends the use of a *Project Profile Model* and a *Summary Risk Profile*.

PROJECT PROFILE MODEL

The report recommended the use of a *Project Profile Model* (borrowed from the US Government), to provide a standard set of high-level criteria against which senior project representatives can assess the characteristics and degree of difficulty of a proposed project, in order to establish the appropriate project controls, including the risk profile and corresponding risk strategy. The example of a model included in the review is included in Table A1.1. The intention was that the model would be piloted by OGC on a range of projects with a view to placing an updated version on the government intranet as a diagnostic tool. It was not intended to be an exhaustive project risk analysis model, but an aid to a fuller project risk analysis. The model requires the senior project representative to assess the project against a number of criteria, each of which is weighted to provide an overall score for the project. The review proposed that a:

- total score less than 20 suggests the project is relatively low risk. Peer reviews and other project controls are likely to be managed from within the sponsoring department;
- total score in the range 21–40 suggests the project is higher risk. Peer reviews should involve other departments or agencies and may require support from OGC and/or CITU; and
- total score of 41 or more suggests the project is high risk and will require OGC and/or CITU involvement.

It was thought the *Project Profile Model* would be used as a starting point in determining the risk profile and corresponding risk strategy of a project, but recognised there will be other project-specific factors that would need to be taken into account. Other factors the report thought should be considered during the assessment of risk include:

- the effect of government priorities on the allocation of resources to the project;
- externally imposed time delays, such as waiting for requirements from other departments;
- capability of the supplier in terms of technology, expertise, skills, etc.;
- inexperience of government department in projects of particular size or complexity; and
- inadequate reliable estimates, feasibility studies, user trial programmes, or other similar data upon which to base a risk assessment.

Table A1.1 Project Profile Model proposed by the Cabinet Office to measure project complexity

| Criteria | Comments | Value | Score | | |
|--|---|--|--|---|---|
| Business Impact | | | | | |
| Total value of the business benefits in £. | Total (as opposed to annual) value, calculated in line with HM Treasury guidance. | Up to £10m | 1 | | |
| | | £10m to £100m | 2 | | |
| | | More than £100m | 4 | | |
| | | Up to £5m | 1 | | |
| Total value of the business costs in £. | Total (as opposed to annual) costs, calculated in line with HM Treasury guidance. Excludes IT costs which are covered later. | £5m to £50m | 2 | | |
| | | More than £50m | 4 | | |
| | | Less than 1000 | 1 | | |
| | | Number of individuals affected. | Refers to internal personnel within government – i.e. includes technical and business staff and users, but excludes citizens, suppliers, etc. | 1000 to 10 000 | 4 |
| More than 10 000 | 6 | | | | |
| No significant change to organisation. | 1 | | | | |
| Impact on business processes (includes changed processes). | Refers to the impact that the project will have on the organisation (both during development and after implementation). Allocate a score between 1 and 6. | | | Major new legislation or significant new processes requiring new skills, new organisation and major new procedures. | 6 |
| | | Impact on government services at implementation. | Refers to the impact that the project will have outside the organisation, for example on the public and businesses (both during development and after implementation). Allocate a score between 1 and 6. | Impact contained internally within the organisation. | 1 |
| Impact potentially disruptive to large sectors of the public and business. | 6 | | | | |
| Impact on other projects and changes. | The degree to which the project is dependent on and connected to other projects and changes. Allocate a score between 1 and 8. | | | Standalone project. | 1 |
| | | | | Supporting wider departmental change initiative. | 3 |
| | | Supporting cross-cutting change initiative. | 6 | | |
| | | Supporting EU or 3rd country initiative. | 8 | | |
| Technical Impact | | | | | |
| Total IT costs. | Total (as opposed to annual) IT costs, calculated in line with HM Treasury guidance. For commercial contracts this will be the total charge to department rather than cost to supplier. | Up to £10m | 1 | | |
| | | £10m to £100m | 2 | | |
| | | More than £100m | 3 | | |
| | | Up to 50 | 1 | | |
| Number of IT practitioners (including internal and outsourced suppliers). | | 50 to 100 | 2 | | |
| | | More than 100 | 3 | | |

Table A1.1 *Continued*

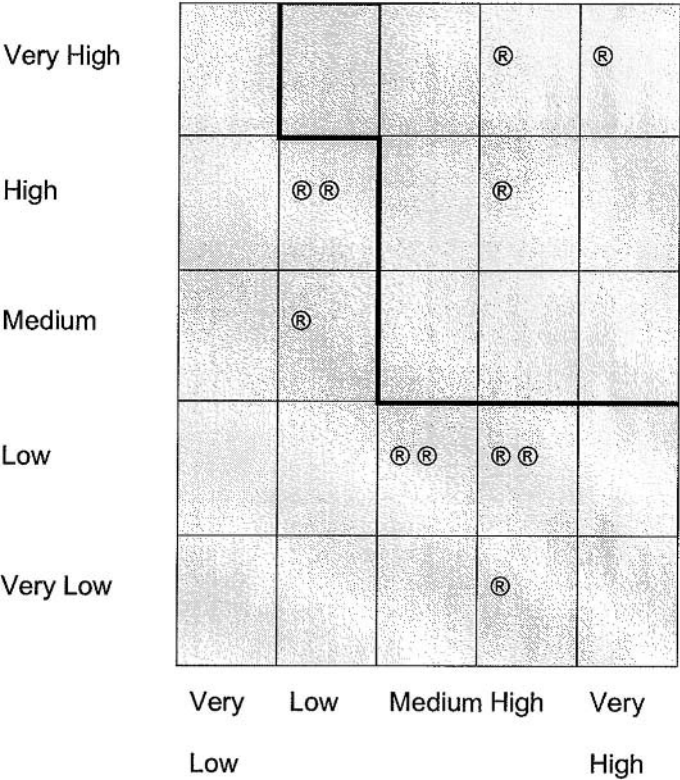
| Criteria | Comments | Value | Score |
|--|--|--|----------------------------|
| Degree of innovation. | The extent to which the project involves innovative solutions, and the level of familiarity and experience available. Allocate a score between 1 and 4. | Stable, proven technology, widely implemented, familiar to organisation and suppliers. Technology or scale of its planned use unproven, and organisation and some suppliers inexperienced in its application. | 1 4 |
| Impact on legacy systems and data. | The degree to which the project will need to develop interfaces to existing systems and data stores. Allocate a score between 1 and 4. | Greenfield development. Extensive data conversion, migration and integration issues, and bespoke interfaces to existing applications and platforms needed. | 1 4 |
| Scope of IT supply. (Note: for this criterion score for each element, i.e. may be cumulative.) | The range of activity that will be undertaken by the IT supplier, and the extent to which these will impact on the business processes of the organisation. | Deliver infrastructure. Deliver packaged software. Deliver bespoke application. Deliver new business processes. Deliver package with significant bespoke elements. Transfer of IT staff. | 1 1 3 3 4 4 |
| Client/Supplier Arrangements | | | |
| Client-side organisation. | The complexity of the client-side arrangements. Allocate a score between 1 and 4. | Single business stream within department. Cross-cutting involving multiple departments. | 1 4 |
| Supply-side organisation. | The complexity of the supply-side arrangements. | Single internal. Single external. Multiple with prime contractor. Multiple without prime contractor. | 1 2 3 4 |

This tool is not unique to the Cabinet Office and has been used by a variety of organisations. This author has used a similar model within training modules for the GCHQ, for instance. Such tables must be appropriate for the project under examination and the results obtained are an aid to decision making rather than an end in themselves.

SUMMARY RISK PROFILE

The report also recommends the use of a *Summary Risk Profile*, illustrated in Figure A1.1, as a simple mechanism to increase the visibility of risks. The term used for this tool by this

Probability



Sensitivity

Ⓜ = risk

———— = risk tolerance line

Figure A1.1 Summary Risk Profile

author and other practitioners is risk map. Both are a graphical representation of information normally found on existing risk registers. The report describes the project manager or risk manager updating the diagram in line with the risk register on a regular basis and providing it to the person with overall responsibility for a project. The figure above shows an example of the *Summary Risk Profile* which illustrates a project’s risks in terms of probability and severity with the effects of mitigating action taken into account. The line represents a set level of tolerance below which the risks are regarded as being effectively managed. Attention is drawn to those above the line by the risk manager, which require immediate action, enabling the senior project representative to target action.

Appendix 2

Sources of Risk

This appendix should be read in conjunction with Section 5.5.1 and Section 11.7.2. The following tables record different authors' views of the sources of risk which can be used as a prompt when carrying out risk identification at the time of investment decision making and during ongoing business activity.

Cooper (2004) refers to the following categories of risk:

Table A2.1 Cooper categories

| | |
|--------------|--------------------|
| • Market | • Credit |
| • Liquidity | • Technological |
| • Legal | • Health |
| • Safety | • Environmental |
| • Reputation | • Business probity |

Day (2001) refers to the following categories of risk:

Table A2.2 Day categories

| | |
|--|--|
| • Commercial and administration | • Financial – liquidity, profitability and financial structure |
| • Market shifts especially with new technology | • Legal issues |
| • Knowledge and information dissemination | • Partners, suppliers and subcontractors |
| • Currency issues both on the supply and sales sides | • Economic cycles and the effect on demand prices |
| • Political events in home and overseas markets | • Resource availability leading to lower production |
| • Quality issues leading to reduced sales | • Innovation, copyright and availability of new technologies |
| • Technical ability of the company | |
| • Management competence and drive | |
| • Competitive responses leading to reduced demand | |

Holliwell (1998) refers to the following categories of risk:

Table A2.3 Holliwell categories

| | |
|--------------------|--|
| • Competitors | • Country |
| • Criminal/fraud | • Economic |
| • Environmental | • Legal |
| • Information | • Operational |
| • Market | • Political |
| • Personal | • Public relations |
| • Product/industry | • Technological |
| • Resources | • Financial (counterparty, funding, currency, interest rate) |
| • War/terrorism | |

BSI publication PD 6668 (2000) lists the following as possible threats to a business and states that they can damage an organisation’s reputation which can have catastrophic effects in the short term with long-lasting consequences:

Table A2.4 BSI categories

| | |
|---|--|
| <ul style="list-style-type: none">● Fraud● Product and/or service failure● Lack of business focus● Environmental mismanagement● Regulatory action● Failure to respond to market changes● Failure to take account of widespread disease or illness among the workforce● Failure to take on new technology● Failure to control IT effectively● Vulnerability of resources (material and human)● Failure to establish effective continuity arrangements in the event of a disaster | <ul style="list-style-type: none">● Unethical dealings● Public perception● Exploitation of workers and/or suppliers● Occupational health and safety mismanagement and/or liability● Civil action● Failure to control industrial espionage● Failure to complete● Failure to invest● Failure to establish a positive culture● Failure to establish effective contingency arrangements in the event of a product and/or service failure● Inadequate insurance provision |
|---|--|

Friend and Zehle (2004) categorise business risks as follows:

Table A2.5 Friend categories

| | |
|--|---|
| <ul style="list-style-type: none">● Operational● Industry | <ul style="list-style-type: none">● Financial● Political |
|--|---|

The HM Treasury (2001) *Orange Book* entitled *Management of Risk, a Strategic Overview* provides a table of the sources of risk (reproduced below), which naturally has a government department focus and subdivides the sources into four main categories labelled “External”, “Financial”, “Activity” and “Human Resources”.

Table A2.6 HM Treasury most common categories of risk (“risk self-assessment” tool)

| | |
|----------------------|--|
| External | |
| Infrastructure | Relating to infrastructures such as computer networks, transport systems for staff, power supply systems |
| Economic | Relating to economic factors such as interest rates, exchange rates, inflation |
| Legal and Regulatory | Relating to the laws and regulations which if complied with should reduce hazards (e.g. – Health and Safety at Work Act) |
| Environmental | Relating to issues such as fuel consumption, pollution |
| Political | Relating to possible political constraints such as a change of government |
| Market | Relating to issues such as competition and supply of goods |
| Act of God | Relating to issues such as fire, flood, earthquake |
| Financial | |
| Budgetary | Relating to the availability of resources or the allocation of resources |
| Fraud or Theft | Relating to the unproductive loss of resources |
| Insurable | Relating to the potential areas of loss which can be insured against |
| Capital Investment | Relating to the making of appropriate investment decisions |
| Liability | Relating to the right to sue or be sued in certain circumstances |

Table A2.6 (Continued)

| | |
|------------------------|---|
| Activity | |
| Policy | Relating to the appropriateness and quality of policy decisions |
| Operational | Relating to the procedures employed to achieve particular objectives |
| Information | Relating to the adequacy of information which is used for decision making |
| Reputational | Relating to the public reputation of the organisation and consequent effects |
| Transferable | Relating to risks which can be transferred or the transfer of risks at inappropriate cost |
| Technological | Relating to the use of technology to achieve objectives |
| Project | Relating to project planning and management procedures |
| Innovation | Relating to the exploitation of opportunities to make gains |
| Human Resources | |
| Personnel | Relating to the availability and retention of staff |
| Health and Safety | Relating to the well-being of people |

The HM Treasury (2004) *Orange Book* revised edition entitled *Management of Risk, Principles and Concepts* provides an updated expanded table of the sources of risk (reproduced below), which again has a government department focus but reflects the developments in enterprise risk management in its new categories of risk now labelled “External”, “Operational” and “Change”.

Table A2.7 HM Treasury summary of the most common categories or groupings of risk

| Category of risk | Examples/explanation |
|--|--|
| 1. External (arising from the external environment, not wholly within the organisation’s control, but where action can be taken to mitigate the risk) | |
| <i>[This analysis is based on the ‘PESTLE’ model – see the Strategy Survival Guide at www.strategy.gov.uk]</i> | |
| 1.1 Political | Change of government, cross cutting policy decisions (e.g. – the Euro); machinery of government changes. |
| 1.2 Economic | Ability to attract and retain staff in the labour market, exchange rates affect costs of international transactions; effect of the global economy on UK economy. |
| 1.3 Socio cultural | Demographic change affects demand for services; stakeholder expectations change. |
| 1.4 Technological | Obsolescence of current systems; cost of procuring best technology available, opportunity arising from technological development. |
| 1.5 Legal | EU requirements/laws which impose requirements (such as health and safety or employment legislation) |
| 1.6 Environmental | Buildings need to comply with changing standards; disposal of rubbish and surplus equipment needs to comply with changing standards. |
| 2. Operational (relating to existing operations – both current delivery and building and maintaining capacity and capability) | |
| 2.1 Delivery | |
| 2.1.1 Service/product failure | Fail to deliver the service to the user within agreed/set terms |
| 2.1.2 Project delivery | Fail to deliver on time/budget/specification |
| 2.1.3 Capacity and capability | |

(Continued)

Table A2.7 (Continued)

| Category of risk | Examples/explanation |
|--|--|
| 2.1.4 Resources | Financial (insufficient funding, poor budget management, fraud HR (staff capacity/skills/recruitment and retention) Information (adequacy for decision making; protection of privacy) Physical assets (loss/damage/theft) |
| 2.1.5 Relationships | Delivery partners (threats to commitment to relationship/clarity of roles) Customer/Service users (satisfaction with delivery) Accountability (particularly to Parliament) |
| 2.1.6 Operations | Overall capacity and capability to deliver |
| 2.1.7 Reputation | Confidence and trust which stakeholders have in the organisation. |
| 2.2 Risk management performance and capability | |
| 2.2.1 Governance | Regulatory and propriety/compliance with relevant requirements/ethical considerations |
| 2.2.2 Scanning | Failure to identify threats and opportunities |
| 2.2.3 Resilience | Capacity of systems/accommodation/IT to withstand adverse impacts and crises (including war and terrorist attack). Disaster recovery/contingency planning |
| 2.2.4 Security | Of physical assets and of information. |
| 3. Change (risks created by decisions to pursue new endeavours beyond current capability) | |
| 3.1 PSA targets | New PSA targets challenge the organisation's capacity to deliver/ability to equip the organisation to deliver. |
| 3.2 Change programmes | Programmes for organisational or cultural change threaten current capacity to deliver as well as providing opportunity to enhance capacity. |
| 3.3 New projects | Making optimal investment decisions/prioritising between projects which are competing for resources. |
| 3.4 New policies | Policy decisions create expectations where the organisation has uncertainty about delivery. |

REFERENCES

- BSI PD 6668 (2000) *Managing Risk for Corporate Governance*, 2001 reprint, British Standards Institute, London, UK, p. 19.
- Cooper, B. (2004), *The ICSA Handbook of Good Boardroom Practice*, ICSA Publishing Limited, London.
- Day, A.L. (2001) *Mastering Financial Modelling, a Practitioner's Guide to Applied Corporate Finance*, Pearson Education Limited, London, UK, p. 219.
- Friend, G. and Zehle, S. (2004) *Guide to Business Planning*, published by Profile Books Limited, Hatton Garden, London, p. 236.
- Holliwell, J. (1998) *The Financial Risk Manual, a Systematic Guide to Identifying and Managing Financial Risk*, Pearson Education Limited, UK.

Appendix 3

DEFRA Risk Management Strategy

This appendix should be read in conjunction with Section 5.9.

The DEFRA risk strategy is divided into six sections: (1) introduction and purpose, (2) aim, principles and implementation, (3) identifying risks, (4) assessing risks, (5) addressing risks and lastly (6) reviewing and reporting risks. These sections are described in turn below. A detailed description of the strategy is described here to avoid reinventing the wheel and learning from others' experience and methods.

(1) INTRODUCTION

Summarising the *introduction*, the strategy states that the Department's aims are to:

- create an environment of “no surprises”;
- be in a stronger position to deliver its business objectives;
- manage opportunities to be in a better position to provide both improved services and better value for money; and
- avoid risk management failure (which can be significant and high profile).

(2) AIM, PRINCIPLES AND IMPLEMENTATION

In terms of the *aim, principles and implementation*, the strategy declares that the drivers for change include:

- the government's desire to promote effective risk management as part of its response to the Report on the BSE enquiry;
- the need to respond to the recommendations of the Turnbull Report; and
- the obligation on the Permanent Secretary to sign and publish statements of internal control with the annual accounts.

The *aim* of the Department is described as being a combination of: wishing to become one of the leading departments in risk management; be an exemplar of good practice; strike a balance between risk and opportunity; keep the strategy up to date; and deliver the aim through the four linked elements of the strategy – identify, assess, address and review, and reporting. The *principles* are described as being transparency, coordination, credibility (in the eyes of the public) and effectiveness. *Implementation* is described as being accomplished through: establishing on the DEFRA intranet the detailed risk management guidance and register; developing the DEFRA website to make the stakeholders and public aware of the risk management approach; conducting training to promote awareness and providing good practice guidance for staff.

(3) IDENTIFYING RISKS

The strategy states that the risk management approach will: be “objective-driven”; be used right across the business; strive to be better at identifying longer-term risks or risks that are currently “over the horizon”, be alive to the general type of external or foresight risk (explained through examples such as worldwide events – such as economic shocks or political upheaval), and will be dependent on good stakeholder involvement and good systems of gathering intelligence. Additionally the Department stated its intention was to carry out “horizon scanning” to seek to identify new issues that may pose future risks to its objectives (or that may provide a new means of meeting the objectives) and “surveillance” to identify important changes in the health of particular populations, often as part of a disease control programme. A key building block of the strategy was declared to be the creation (and subsequent maintenance) of a central risk register of its important risks, built up from each of the Directorates and Agencies. Importantly the strategy stated that: “this should be a living process, not a tick-box approach and must not become bureaucratic”. It was thought that a culture that systematically identified risks would be well placed to assess risks and opportunities. To this end the Department considered that they plan to be in that position – to bring improved performance through the calculated taking of opportunities.

(4) ASSESSING RISKS

The strategy considers that to assess risks adequately the Department will identify the consequences of a risk materialising and give it a risk rating. Consequence categories identified by DEFRA are included below:

Box A3.1 Consequence categories

| | |
|---------------|---|
| Political | e.g. Ministerial embarrassment |
| Financial | e.g. high government expenditure to fight an animal health disease outbreak |
| Societal | e.g. vCJD cases ¹ |
| Operational | e.g. targets missed |
| Legal | e.g. claims against the Department |
| Environmental | e.g. habitat damage |
| Reputational | e.g. loss of public confidence in the Department’s advice |

As a way of having a means of comparing risks and addressing the most serious, DEFRA have defined a four by four probability impact grid called a risk rating matrix which uses the scales VL (very low), L (low), M (medium) and H (high). In terms of likelihood, these scales are defined as follows:

¹CJD (Creutzfeld-Jacob Disease) is an example of spongiform encephalopathies found in humans. Like the animal disorders, they are progressive and universally fatal. vCJD refers to variant CJD. The symptoms, duration of illness, age of onset and other characteristics, distinguish variant CJD from other forms of CJD.

Box A3.2 Likelihood rating definitions

| | |
|----|--|
| VL | rare – the risk may occur in exceptional circumstances |
| L | possible – the risk may occur in the next three years |
| M | likely – the risk is likely to occur more than once in the next three years, and |
| H | almost certain – the risk is likely to occur this year or at frequent intervals |

In terms of impact, the scales are defined as follows:

Box A3.3 Impact category definitions

| | |
|----|--|
| VL | low financial losses; no public health effects; service delivery unaffected; no legal implications; unlikely to affect the environment; unlikely to damage reputation |
| L | medium financial losses; minor or reversible health effects; reprioritising of delivery required; minor legal concerns raised; minor impact on the environment; short-term reputation damage |
| M | major financial loss; significant public health effects; deadlines renegotiated with customers; potentially serious legal implications (e.g. risk of successful legal challenge); significant environmental impact; longer-term damage to reputation |
| H | huge financial loss; key deadlines missed; very serious legal concerns (e.g. high risk of successful legal challenge with substantial implications for the Department); major environmental impact; loss of public confidence |

(5) ADDRESSING RISKS

The aim of the strategy is to prevent the realisation of risks and to this end have, they declare, built on the HM Treasury's guidance contained in their *Orange Book*, which was discussed earlier in this appendix. Having assessed each risk a response is defined by selecting one of the "Four Ts" described in the *Orange Book* – transfer, tolerate, treat or terminate. In addressing the risks, the Department seeks to adopt an appropriate response and reduce the risk to "As Low as Reasonably Practicable" to suit the circumstances (known as the ALARP approach). The Department states that it will have contingency plans for all risks which have been addressed as having a potentially high impact, irrespective of the likelihood and plans would be rehearsed. Additionally business continuity plans will be prepared to keep the business running during times of change or disruption and disaster recovery plans for serious events such as terrorist activity, contamination of sites or a national catastrophe.

(6) REVIEWING AND REPORTING RISKS

The Department stresses that as risk management is a dynamic process (and not static) and hence risks, their assessment, countermeasures and contingencies will have to be kept up to date. Additionally the management board will keep the main risks under regular review. It is

their intention to develop a baseline risk register and monitor progress against it. Evidence is required by the Department that their interventions are having the desired effect. Directorates and Agencies will be required to regularly review their registers and report significant changes. The Department will assess this updating process, and examples of their lines of enquiry are captured below.

Box A3.4 Measures for determining the “currency” of the risk management process

1. How regularly [are registers reviewed and change reported] in each Directorate and Agency?
2. What level of input is the Director or Chief Executive having to this review?
3. How static is the register? Do the changes appear cosmetic and presentational or are they substantial, involving the identification of new countermeasures or additional actions? Are the additional actions being tackled?
4. Is there an audit trail, outlining the actions that have been taken and indicating their relative success?
5. Is the departmental register being made available to staff and are they amending their individual registers in the light of risks or actions in related Directorates or Agencies?
6. What is the turnover in terms of new risks being identified and existing risks being terminated? What is the general trend in the rating of the risks that have been registered? Is the number of high and H-star risks decreasing?

(7) ROLES AND RESPONSIBILITIES

The driver behind clarifying “who does what” within DEFRA in terms of risk management is based on the perception that the Department will be exposed to risks being unmanaged causing damage or loss that could otherwise have been influenced, controlled or avoided. This section of the strategy identifies 17 affected parties (some being individuals such as the Permanent Secretary and others being within a group such as the DEFRA Management Board), who have a role in the implementation of risk management in its widest terms. They are too numerous to report on in full here. The role of Risk Owners is described as overseers of the risk countermeasures in place, reviewing contingencies and developing additional actions as required. Risk Managers are described as the individuals responsible for the day-to-day implementation of countermeasures, monitoring their impact and reporting on their effectiveness.

Appendix 4

Risk: Improving Government's Capability to Handle Risk and Uncertainty

This appendix should be read in conjunction with Section 5.10.

The Cabinet Office report *Risk: Improving Government's Capacity to Handle Risk and Uncertainty* is structured into five areas: (1) the government's role and responsibilities, (2) improving government's handling of risk, (3) improving capacity, (4) handling the communication of risk and (5) the role of leadership and culture change. Each of the areas is examined below.

(1) THE GOVERNMENT'S ROLE AND RESPONSIBILITIES

The report provides a framework for understanding the roles government plays in handling risk and the responsibilities that are expected of it in each of its roles. The report defines three roles, a regulatory role, a stewardship role and a management role.

Regulatory roles: Governments generally have a regulatory role in providing the legal framework where the activities of business and individuals give rise to risk to others. The report advises that governments will not normally intervene where individuals take risks voluntarily and where they alone are affected. However, where these risks (taken voluntarily) have direct or indirect consequences on others, such as on the environment, government may intervene through regulation to limit or control that activity. Legislative proposals that have an impact on business, charities or the other voluntary sector have a Regulatory Impact Assessment (RIA), which includes a risk assessment of the problem being addressed and of the proposal itself. Additionally governments generally seek to ensure that those who impose risks on others bear the cost of the consequences of the risk; an example being the "polluter pays principle" which transfers to the polluter the cost of clearing up the environmental damage.

Stewardship role: Again governments generally have a stewardship role to protect individuals, businesses and the environment from risks imposed on them from outside such as major flooding, risks to public health, external threats to security or risks to economic stability. Government intervention in response to this type of risk can take two main forms, action to reduce the likelihood of the risk occurring (for example, through the provision of flood defence) or action to mitigate the consequences (for example, through the provision of health care). However, in either case government cannot take the risk entirely away from members of the public. Where there is a risk that an activity may cause serious harm to others and that those taking part may not be able to cover their liabilities, government may require them to pool their risks by taking out insurance first (the requirement for third-party motor insurance is cited as an example). Another concern for government is the provision of critical services provided by business such as energy, water and telecommunications, where the effects of service failure

on the wider public would be severe. Government's role is seen to be to monitor and when necessary take action to ensure that critical networks continue to function.

Management role: The report describes government as having a management role in relation to their own business including the delivery of public services and the performance of the regulatory and stewardship functions. In relation to its own business, government has a responsibility to identify and manage risks. Typical risks may include IT failure, delay or unbudgeted expenditure, or the risk of taking on too many high-risk projects simultaneously. The report provides an example where government will not provide a service direct, but will enter into a contract with another party to deliver it on its behalf with an example being privately run prisons. While governments as a norm retain responsibility for the outcome of the service (in this case protection of the public), they may transfer responsibility for achieving specific objectives (and the associated risks) to another body. In addition, the government find that when essential services go wrong, the public still look to government to put them right, regardless of whether these services are provided privately. The failure of Railtrack is cited as an example where government retains ultimate responsibility for the continuity of such services through its role as regulator, when (as the report describes) those tasked with providing the service are no longer capable of doing so. The report claims that where responsibility for a risk lies with government departments and agencies, there are well understood procedures for ensuring that it is adequately handled.

(2) IMPROVING GOVERNMENT'S HANDLING OF RISK

This particular chapter sets out the challenge to government (as the report describes it) and considers that government needs to handle risk at three main levels: strategic, programme and operational. At a strategic level, decisions involve: the formulation of strategic objectives, resource allocation and choosing between options. At programme level policies and delivery plans are selected for the benefit of society necessitating decisions being made on: procurement, acquisition, funding, organisation, projects, service quality and business continuity. At project and operational level the report advises decisions are made on: technical issues, managing resources, schedules, providers, partners and infrastructure. The report states that the "handling of risk at all three levels has been found wanting in recent crises and policy failures" and that reports by the National Audit Office (NAO) and the Public Accounts Committee (PAC) have discovered systematic weaknesses. The causes of these weaknesses are explored, examining the inherent complexity and riskiness of government business and reviewing the social context within which government works, which is considered to be more demanding. Examples cited where risk management was considered inadequate are included in Box A4.1.

The NAO report *Supporting Innovation* and the PAC report *Managing Risk in Government Departments* both highlighted weaknesses in risk management practice and made recommendations for improvement. The surveys conducted by the Strategy Unit confirmed the findings of the two earlier reports. The cause behind these shortcomings were seen to be a mixture of poor communication across functional government departments, and the robustness of the IT and other systems that support the delivery of services. In addition it is thought the social context within which government is more demanding in that while the traditional risks to life, health, economic well-being and housing have greatly reduced in modern societies, awareness of risk has risen and expectations on risk management in particular have

Box A4.1 Inadequate risk management

Unsuccessful government practices or projects:

- The management of risk on The Individual Learning Accounts programme was criticised. By the end of January 2002, the total number of complaints received had reached nearly 18 300, with unsettled claims reaching nearly £15 million.
- The NAO report on the passport delays of the summer of 1999 stated that the cost of failure was £12.6 million. One of the general lessons learnt was that formal risk assessments should be carried out for all new computer systems (NAO 1999).
- The Phillips Inquiry report on BSE highlighted that several aspects of the government's handling of risk and uncertainty were unsatisfactory, notably the timing, implementation and enforcement of mitigation measures, its use of independent scientific experts and failure to communicate with the public on the risks to humans.
- The Cullen Report on the Ladbroke Grove rail crash identified that there was a "persistent failure to carry out risk assessments by whatever method was available" (Lord Cullen 2001). There was (and possibly remains) a public perception that the railways were the responsibility of government.
- The NAO report on the handling of foot and mouth disease (FMD) estimated that its mismanagement cost the public and the private sector in excess of £8 billion. The organisation of government into departments, the report considers, makes it harder for government to deal with cross-cutting risks.

risen. This is thought to be the product of the growing sense that risks can be controlled or are the product of human activity, rather than being effects of fate or random chance. In addition:

- there is declining trust in institutions borne out by studies by MORI, and the OECD, declining trust in government leadership (e.g. over the measles, mumps and rubella – MMR – vaccination campaign) and scientific advice (recently rocked by the BSE crisis);
- the public expect that as the standard of service has improved in the private sector, it should be reflected in the public sector particularly in terms of access, faster services and greater simplicity;
- there has been a rise in the number of groups that have been willing to become activists and an influential media has been found to amplify concerns significantly through their need to provide 24 hour coverage;
- the public have greater access to information through the media and websites – the government is not the sole source of information on risks and finds itself the subject of challenge;
- advances in science and technology have created novel and highly uncertain risks (e.g. radiation from mobile phones, computer fraud and genetically modified crops) and the government is increasingly being asked to assess, communicate and mitigate these risks (say through regulation) with relatively little historical experience to draw on;
- there are greater expectations in terms of corporate governance and the handling of risk reflecting developments in the private sector such as the Combined Code and the Turnbull Report.

(3) IMPROVING CAPACITY

Government perceives that there is an expectation that it should manage risk well to cut waste and inefficiency and reduce unanticipated problems and crises that undermine the public's trust. The government considers that it should improve capacity to handle risk in five areas:

- Ensuring that decisions take account of risk by embedding risk handling in the decision processes.
- Firmly establishing risk management techniques.
- Organising to manage risk by making sure that risk is placed with those best placed to manage it.
- Developing skills and making sure that those involved in decision making are equipped to give due weight to risk issues and that they are supported by professional expertise.
- Ensuring quality through the application of standards and benchmarking.

Common approach: The report states that while decisions are made at three commonly recognised levels of strategy, programme and operation/project, which have their own distinct characteristics, common approaches are necessary for all three. Namely, risks have to be identified and assessed, responsibilities assigned, judgement made as to their importance, mitigation and consultancy plans considered, success of mitigation reported and details/decisions effectively communicated. It considers that there are particular weaknesses in risk analysis in the policy phase of the process of policy development and delivery. The report recommends an explicit systematic approach in order to improve the quality of decisions to provide an audit trail of risk judgements and to combat silo thinking by joining up risk management actions across Departments, a clear parallel with enterprise risk management.

Embedding risk: It is considered that risk needs to be more clearly an integral part of the way government's business is done. Risk practice is uneven and, critically, not well integrated into the initial development of policy options. The lack of explicitness about risk issues and their management is a key concern. This is thought to undermine accountability and often lacks an audit trail of judgements about risks making it impossible to regularly review risk judgements.

Barriers to overcome: The barriers to the implementation of risk management in government recorded in Box A4.2 are clearly echoed in business.

Practical approaches to the barriers: The report considers that the culture must support well-judged risk taking, embed risk thinking clearly into existing planning and operational decisions, implement an explicit appraisal of risks (as well as the benefits and costs) in all the main business processes, and ensure strategic risks are regularly considered by Department Boards and the Civil Service Management Board.

Policy making: As policy making is the process by which governments translate their political vision and priorities into actions to deliver outcomes, the report considers failure to explicitly consider risk management in policy making and decision making can lead to serious problems, with the fallout being borne by the public. Additionally opportunities for high risk/reward options are passed over through a lack of confidence. At present the report advises there is no structured and enforced requirement to consider risks. Some very high priority policies have been implemented without adequate attention to the attendant risks, often leading to

Box A4.2 Barriers to implementation of risk management

- A lack of planning – decisions often need to be made quickly and risk management will be compromised if information is not readily available
- Pressure on resources – encouraging planning on optimal assumptions
- Short planning horizons – traditionally Ministers have been focused on announcements than on longer-term implementation and delivery when risks might be realised
- Lack of good quality relevant information
- Limited in-house skills, experience and tools
- The real difficulty of assessing and balancing risks and opportunities and weighing, for example, financial versus other risks
- Fear of failure acting as a disincentive to innovation
- In some cases political anxiety about explicit acknowledgement of risk

very costly corrective action. The report recommends that a wider consideration of risk be included in policy making to provide an adequate review before proposals move into full development.

Business planning: The report recommends business planners refer to the Cabinet Office guide *Your Delivery Strategy: A Practical Look at Business Planning and Risk* (Cabinet Office 2001) which provides guidance and incorporates other source information including the Treasury *Orange Book*. In addition business plans need to include better quality risk management plans.

Project and programme management: The report is guarded and states that “perhaps” risk management is best developed in the area of projects and programmes. In addition the best managed projects have moved well beyond the passive logging of risks and have very active approaches to identifying, assessing and managing risks. The report recommends that Departments follow the OGC guidance on managing risk in projects and programmes and apply this guidance to their gateway reviews, where risks are required to be assessed and plans to manage them signed off before moving to the next stage of the project.

Investment appraisal: The report states decision making needs to be underpinned by a series of issues such as the:

- focus of investment appraisals on benefits, costs and risks;
- explicit identification and assessment of risks;
- development of risk mitigation plans for priority risks from conception to appraisal and into execution;
- inclusion of risk identification and assessment within all key submissions at all levels;
- use of proformas or templates;
- use of post-project evaluations (PPEs) as a way of formally reviewing risk outcomes at the operational level;
- development of cost/benefit analysis incorporating risk assessment for inclusion within option appraisals; and
- development of Treasury’s guide to investment appraisal (known as the *Green Book*), to deal with these issues.

Operational management: A Treasury sponsored study found inadequate: adherence to risk management guidelines, identification and assessment, pooling of risks, data capture and financial incentives to improve risk management.

(4) HANDLING THE COMMUNICATION OF RISK

The report considers that one of the main challenges of risk management for government is to win public trust. This trust, the government perceives, has been harder to secure more recently, due to a rise in public expectations and the extent and depth of media coverage given to government activities. Hence it is concluded that there is a need for:

- building confidence in government decisions involving risk;
- more transparency about decisions that have been reached and their basis;
- a refocus of decisions to better reflect public concerns and considerations about what is important;
- providing sufficient information so that the public can make balanced judgements; and
- a greater involvement of stakeholders at an early stage in the decision process.

(5) THE ROLE OF LEADERSHIP AND CULTURAL CHANGE

The report considers that a sharper focus on risk management needs to be led from the “top” by Ministers and Permanent Secretaries who should actively engage in providing the lead in:

- driving implementation of improvements in risk management identified in the report;
- taking key judgements and providing a clear focus and direction;
- ensuring that managers are equipped with the skills, background knowledge and tools;
- supporting innovation; and
- ensuring clear accountability for managing risks.

In addition the report considers the following are important to embedding and effectively implementing risk management:

- getting the culture right;
- being aware of the risks;
- eliminating factors which hamper well-judged risk taking:
 - mismatches between accountability, responsibility and authority to act;
 - setting appropriate incentives; and
- overcoming the deterrent to risk taking from past criticism by the media and the Public Accounts Committee (PAC).

REFERENCES

- Cabinet Office (2001) *Your Delivery Strategy: A Practical Look at Business Planning and Risk*, Cabinet Office, and HM Treasury, HM Government, London, September.
- Lord Cullen (2001) *Ladbroke Grove Rail Inquiry, Part 1 Report*, HSE Books, London.
- National Audit Office (2000) *Passport Agency: The Passport Delays of Summer 1999*, October, The Stationary Office, London.

Appendix 5

Financial Ratios

This appendix should be read in conjunction with Section 10.7.1.

PROFITABILITY

The following ratios may be used to evaluate the profitability of a business.

Return on ordinary shareholders' funds (ROSF)

The return on ordinary shareholders' funds compares the amount of profit for the period available to the ordinary shareholders with the ordinary shareholders' stake in the business. The ratio, which is normally expressed in percentage terms, is as follows:

$$\text{ROSF} = \frac{\text{net profit after taxation and preference dividend (if any)}}{\text{ordinary share capital plus reserves}} \times 100$$

The net profit after taxation and after any preference dividend is used in calculating the ratio as this figure represents the amount of profit available to the ordinary shareholders.

Return on capital employed (ROCE)

The return on capital employed is a fundamental measure of business performance. The ratio expresses the relationship between the net profit generated by the business and the long-term capital invested in the business. The ratio is expressed in percentage terms and is as follows:

$$\text{ROCE} = \frac{\text{net profit before interest and taxation}}{\text{share capital} + \text{reserves} + \text{long-term loans}} \times 100$$

It should be noted that the profit figure used in the ratio is the net profit before interest and taxation. This figure is used because the ratio attempts to measure the returns to all suppliers of long-term finance before any deductions for interest payable to lenders or payments of dividends to shareholders are made. ROCE is considered by many to be a primary measure of profitability as it compares inputs (capital invested) with outputs (profit). This comparison is of vital importance in assessing the effectiveness with which funds have been deployed.

Net profit margin

The net profit margin relates the net profit for the period to the sales during that period. The ratio is expressed as:

$$\text{net profit margin} = \frac{\text{net profit before interest and taxation}}{\text{sales}} \times 100$$

Gross profit margin

The gross profit margin relates the gross profit for the period to the sales generated for the same period. The gross profit ratio is expressed as:

$$\text{gross profit margin} = \frac{\text{gross profit}}{\text{sales}} \times 100$$

EFFICIENCY

Efficiency ratios examine the ways in which various resources of the business are managed. The following ratios consider some of the more important aspects of resource management.

Average stock turnover period

Stocks often represent a significant investment for a business. For some types of business (for example, manufacturers), stocks may account for a substantial proportion of the total assets held. The average stock turnover period measures the average number of days for which stocks are being held. The ratio is calculated as follows:

$$\text{stock turnover period} = \frac{\text{average stock held}}{\text{cost of sales}} \times 365 \text{ days (calculated to the nearest day)}$$

Average settlement period for debtors

Businesses are commonly concerned with how long it takes for customers to pay the amounts owing. The speed of payment can have a significant effect on the cash flows of a business. The average settlement period for debtors calculates how long, on average, credit customers take to pay the amounts that they owe to the business. The ratio is as follows:

$$\text{average settlement period} = \frac{\text{trade debtors}}{\text{credit sales}} \times 365 \text{ days (calculated to the nearest day)}$$

Average settlement period for creditors

The average settlement period for creditors tells a reviewer how long on average, the business takes to pay its trade creditors. The ratio is calculated as follows:

$$\text{average settlement period} = \frac{\text{trade creditors}}{\text{credit purchases}} \times 365 \text{ days (calculated to the nearest day)}$$

Sales to capital employed ratio

The sales to capital employed ratio examines how effective the long-term capital employed of the business has been generating sales revenue. The ratio is calculated as follows:

$$\text{sales to capital employed ratio} = \frac{\text{sales}}{\text{long-term capital employed}}$$

Sales per employee

The sales per employee ratio relates sales generated to a particular business resource. It provides a measure of the productivity of the workforce. The ratio is:

$$\text{sales per employee} = \frac{\text{sales}}{\text{number of employees}}$$

The relationship between profitability and efficiency

The overall return on funds employed within a business will be determined by both the profitability of the sales and by the efficiency in the use of capital. Hence the ROCE ratio can be divided into two main elements: net profit to sales and sales to long-term capital employed:

$$\text{ROCE} = \frac{\text{net profit before interest and taxation}}{\text{sales}} \times \frac{\text{sales}}{\text{long-term capital employed}}$$

LIQUIDITY

Current ratio

The current ratio compares the “liquid” assets (cash and those assets held which will soon be turned into cash) of the business with the current liabilities (creditors due within one year). The ratio is calculated as follows:

$$\text{current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

Acid test ratio

The acid test ratio represents a more stringent test of liquidity. It can be argued that for many businesses, the stock in hand cannot be converted into cash quickly. The acid test ratio is calculated as follows:

$$\text{acid test ratio} = \frac{\text{current assets (excluding stock)}}{\text{current liabilities}}$$

Operating cash flows to maturing obligations

The operating cash flows to maturing obligations ratio compares the operating cash flows to the current liabilities of the business. It provides a further indication of the ability of the business to meet its maturing obligations. The ratio is expressed as:

$$\text{operating cash flows to maturing obligations} = \frac{\text{operating cash flows}}{\text{current liabilities}}$$

Gearing

Gearing occurs when a business is financed, at least in part, by contributions from outside parties. The level of gearing is (that is, the extent to which a business is financed by outside parties) associated with a business is often an important factor when assessing risk. When a business borrows heavily, it takes on a commitment to pay interest charges and capital repayments. This can be a real financial burden and can increase the risk of a business becoming

insolvent. It is common for businesses to borrow as they have insufficient funds to grow the business. A reason for borrowing may be that the loan interest is an allowable charge against tax and this can reduce the costs of financing the business:

$$\text{gearing ratio} = \frac{\text{long-term liabilities}}{\text{share capital} + \text{reserves} + \text{long-term liabilities}} \times 100$$

Interest cover ratio

The interest cover ratio measures the amount of profit available to cover interest payable. The ratio may be calculated as follows:

$$\text{interest cover ratio} = \frac{\text{profit before interest and taxation}}{\text{interest payable}}$$

INVESTMENT RATIOS

Dividend yield ratio

The dividend yield ratio relates the cash return from a share to its current market value. This can help investors to assess the cash return on their investment in the company. The ratio is calculated as:

$$\text{dividend} = \frac{\text{dividend per share} / (1 - t)}{\text{market value per share}} \times 100$$

Earnings per share (EPS)

The earnings per share of a company relates the earnings generated by the company during a period and available to shareholders to the number of shares in issue. For ordinary shareholders, the amount available will be represented by the net profit after tax (less any preference dividend where applicable). The ratio for ordinary shareholders is calculated as follows:

$$\text{earnings per share} = \frac{\text{earnings available to ordinary shareholders}}{\text{number of ordinary shares in issue}}$$

Operating cash flow per share

It is commonly contested that, in the short term at least, operating cash flow per share provides a better guide to the ability of a company to pay dividends and to undertake planned expenditures than the earnings per share figure. The operating cash flow (OFC) per ordinary share is calculated as follows:

$$\text{OFC per ordinary share} = \frac{\text{operating cash flows} - \text{preference dividends (if any)}}{\text{number of ordinary shares in issue}}$$

Price/earnings ratio (P/E)

The price/earnings ratio relates the market value of a share to the earnings per share. The ratio can be calculated as follows:

$$\text{P/E ratio} = \frac{\text{market value per share}}{\text{earnings per share}}$$

Appendix 6

Risk Maturity Models

This appendix should be read in conjunction with Section 10.7.2.

As discussed in Section 10.7.2 Risk Maturity Models are useful tools in understanding the degree of sophistication of a business risk management process, its reliability and effectiveness in identifying, assessing and managing risks and opportunities. Hillson proposes a Risk Maturity Model (RMM) and describes guidance to organisations wishing to develop or improve their approach to risk management, allowing them to assess their current level of maturity, identify realistic targets for improvement and develop action plans for increasing their risk capability (Hillson 1997). The model is composed of four levels, which are described in ascending order as “naïve”, “novice”, “normalised” and “natural”. The levels are defined as follows [my words in brackets]:

Box A6.1 Hillson Maturity Model

Level 1 Naïve

The Naïve risk organisation is unaware of the need for risk management and has no structured approach to dealing with uncertainty. Management processes are repetitive and reactive with little or no attempt to learn from the past or to prepare for future threats or uncertainties.

Level 2 Novice

The Novice risk organisation is experimenting with [the] application of risk management, usually through a small number of nominated individuals, but has no formal or structured generic process in place. Although aware of the potential benefits of managing risk, the Novice organisation has not effectively implemented risk processes and is not gaining the full benefits.

Level 3 Normalised

The Normalised risk organisation has built management of risk into routine business processes and implements risk management on most or all projects. Generic risk processes are formalised and widespread, and the benefits are understood at all levels of the organisation, although they may not be consistently achieved in all cases.

Level 4 Natural

The Natural risk organisation has a risk-aware culture, with a proactive approach to risk management in all aspects of the business. Risk information is actively used to improve business processes and gain competitive advantage. Risk processes are used to manage opportunities as well as potential negative impacts.

An alternative description of levels of maturity is proposed by the CCTA (Government Centre for Information Systems 1993), again distinguishing between the levels of maturity by

Box A6.2 CCTA Maturity Levels**First level of maturity**

The first type of organisation structure is the “virtual organisation”, in which the management of risk is everyone’s responsibility. In this situation, it is up to an interested individual manager to pursue good practice in respect to the management of risk.

Second level of maturity

The second level is where there is a separate management of risk group consisting of specialists who conduct analyses for operational, project, programme and senior managers. Usually these groups operate on a task-by-task basis, examining a single high-risk project, for example. The usefulness of these groups depends greatly on the talents of the specialists involved and the individual managers’ willingness to accept advice.

Third level of maturity

The third type of management of risk organisation exists when the specialist risk group is integrated within existing management groups at each organisational level. More formal mechanisms are needed to communicate risk information among these different groups. Although still mainly task oriented, more structured or formal management of risk approaches are put in place.

Fourth level of maturity

The fourth type of organisational structure is the fully integrated management of risk organisation. In this structure, the management of risk is everyone’s responsibility, but formal mechanisms exist to help bring this about. A management of risk infrastructure that incorporates a standard analysis and management process exists.

describing where in the organisation risk management is carried out and who is responsible for implementation, as follows:

Within the description of his model, Hillson describes four evaluation criteria called Culture, Process, Experience and Application against which the four maturity levels are assessed. Each criterion using attributes of the typical organisation at each RMM level. Hopkinson (2000) describes two Microsoft Access-based Risk Maturity Models produced by a consultancy, one for use at the company (or business) level and one that is specifically applicable to the project environment. Both models adopt the four levels of maturity described by Hillson. The models determine the maturity of a risk management system (assumed here to be synonymous with process) by evaluating it against six criteria (called perspectives). For the company model these perspectives are Management, Risk Identification, Risk Analysis, Risk Control, Risk Review and Culture. For each perspective a series of questions are asked. The questions are weighted in accordance with the model’s view of the significance of that question to the overall effectiveness of a risk management system. The overall assessment is considered to be only as high as the weakest among the six individual criteria. Hopkinson explains that the rationale for this scheme of assessment is that the overall system for risk management is only as strong as its weakest area. The example he provides is “there is little point in having state of the art risk analysis, if the risk identification processes are so ineffective that many of the important risks are ignored”. Hopkinson describes the characteristics of organisations operating at what he defines as RMM Level 4 (the most mature level), in the box below.

Box A6.3 Hopkinson Risk Maturity Model for businesses, Level 4**Management**

- Board's RM policy reported to shareholders
- Management leads RM by example. Practical definition of "significant risks"
- Practical definition of the risks to be borne
- Clear RM channels of communication

Risk Identification

- All sources of risk considered, including strategic, financial, technological, resource, disaster, projects, operational and external
- New risks identified in a timely manner
- Unusual events investigated for risk
- All employees can identify risks

Risk Analysis

- Consistent definition of probability
- Consistent definitions of impact
- Prioritisation influences agendas and promotes cost effectiveness
- Widespread availability of RM expertise
- Analysis traces risk source and secondary effects
- Risks records retained on state of the art tools

Risk Control

- Risk control actions based on cost/benefits analysis after considering all strategies
- Well focused actions on individuals
- Actions are consistently completed
- Business continuity planning as appropriate

Risk Review

- Annual formal board review of RM effectiveness
- Strategy for review of all risks maximises cost effectiveness
- New information on significant risks is reported immediately
- Board regularly review significant risks
- Risk reports optimised for effectiveness

Culture

- Board's policy translated into management instructions understood by all employees
- Atmosphere of mutual trust
- Proactive risk management rewarded. Key managers have good RM skills and relevant experience in the core business.

Figure A6.1 describes a business Risk Maturity Model developed by the author for assessing business risk management processes. It has four maturity levels entitled Initial, Basic, Standard and Advanced. Each level is assessed against the criteria called culture, system, experience, training and management.

| | LEVEL 1 – INITIAL | LEVEL 2 – BASIC | LEVEL 3 – STANDARD | LEVEL 4 – ADVANCED |
|-------------------|---|--|--|---|
| OVERVIEW | <ul style="list-style-type: none"> Compliance only approach Risk appetite not defined No framework developed Risk profile not defined No senior management buy-in to RM as a decision tool | <ul style="list-style-type: none"> RM established for business improvement Risk appetite defined Framework established Risk system established Risk profile defined | <ul style="list-style-type: none"> RM built into routine business processes covering end-to-end production or delivery of services Benefits recognised at all levels of the organisation | <ul style="list-style-type: none"> RM considered critical to achievement of the business goals Approach communicated to the organisation as a whole Risk appetite transparent Business seeks continuous improvement Proactive upside (opportunity) RM Sophisticated modelling techniques |
| CULTURE | <ul style="list-style-type: none"> RM established to meet the Combined Code, the Listing Rules and annual reporting Specific risk management roles not defined | <ul style="list-style-type: none"> Risk exposure defined Roles and responsibilities defined Meeting structure defined Decision-making mechanisms established | <ul style="list-style-type: none"> Proactive approach to RM to improve business performance Central risk management function created High-level risks and responses debated at the board on a regular cycle | <ul style="list-style-type: none"> RM culture lead by the chief executive RM information used in decision making RM roles and responsibilities included in the induction process, job description and performance appraisals Proactive enforcement of RM through employment contracts |
| SYSTEM | <ul style="list-style-type: none"> Risk strategy unclear Risk framework (and its constituent parts) embryonic | <ul style="list-style-type: none"> RM framework under development OR or BCM not addressed Poor data collection and trend analysis | <ul style="list-style-type: none"> RM strategy defined, relevant and practical RM framework developed OR and BCM frameworks being implemented | <ul style="list-style-type: none"> RM strategy defined and kept under review RM framework developed and benchmarked against best practise |
| EXPERIENCE | <ul style="list-style-type: none"> Very limited understanding of systems, terminology or software | <ul style="list-style-type: none"> Limited to small number of the Audit Committee and Company Secretary | <ul style="list-style-type: none"> In-house core of experienced individuals in systems, modelling and response planning | <ul style="list-style-type: none"> Risk awareness throughout the organisation plus external support |
| TRAINING | <ul style="list-style-type: none"> No training provided in-house or from external support | <ul style="list-style-type: none"> Training undertaken by Audit Committee members | <ul style="list-style-type: none"> Risk manager appointed Risk committee established | <ul style="list-style-type: none"> Training and education programme provided to all business unit heads |
| MANAGEMENT | <ul style="list-style-type: none"> Management practices focused on satisfying the Combined Code and the Listing Rules | <ul style="list-style-type: none"> Economic capital allocated to operational risk Operational risk management reactive Risks reviewed on a yearly basis | <ul style="list-style-type: none"> Guidance on risk reward balance provided to line management Early warning indicators established for OR Economic capital allocated to market, credit and operational risk Operational risks controls incorporated into the business BCM plans developed Risks reviewed on a six monthly basis | <ul style="list-style-type: none"> Guidance on risk reward balance provided to line management Early warning indicators established for both OR and business context Reputational risk addressed Economic capital allocated to all risks Operational risks controls incorporated into the business processes BCM plans tested at regular intervals Risks reviewed on a monthly basis |

Figure A6.1 Business Risk Maturity Model

REFERENCES

- Government Centre for Information Systems (1993), *Introduction to the Management of Risk*, October, HMSO, Norwich.
- Hillson, D. (1997) "Towards a Risk Maturity Model," *The International Journal of Project and Business Risk Management*, Vol. 1, Spring, 35–45.
- Hopkinson, M. (2000) "Risk Maturity Models in Practice", *Risk Management Bulletin*, Vol. 5, Issue 4.

Appendix 7

SWOT Analysis

This appendix should be read in conjunction with Section 10.7.3.

UNDERTAKING SWOT ANALYSIS

There are 17 commonly recognised steps in the implementation of a SWOT analysis as listed below. The term “factor” used below is a descriptive label to describe an issue, subject area or influence that will determine a business’s ability to compete in the market place.

- Step 1: Establish the individuals that should be involved in the process. It should include employees from all key areas of the business.
- Step 2: Consider involving (if appropriate) key customers, suppliers or other sympathetic outsiders who know the market within which the business operates and can provide an objective independent view.
- Step 3: Arrange a workshop (date, time and venue) to identify the business’s strengths and weaknesses and the opportunities and threats facing it.
- Step 4: Ask participants to collect and review information on internal management and external factors affecting the market within which the business operates, prior to the workshop.
- Step 5: Decide whether there is a suitable individual in house who would have the skills and objectivity to manage the workshop, or if required appoint an external facilitator.
- Step 6: Prepare and issue a briefing pack to the participants including some basic details about the structure of the market and the business’s performance within that market, so that discussion within the workshop is less subjective.
- Step 7: Decide on how the factors will be measured/quantified.
- Step 8: Hold the workshop. Brainstorm the factors.
- Step 9: List the strengths, weaknesses, opportunities and threats. Only important factors should be included, but some factors will invariably be more important than others. Each factor should be a short bullet point so that the SWOT analysis fits on one page.
- Step 10: Strive to make factor descriptions as specific as possible.
- Step 11: Where possible quantify the factors.
- Step 12: Quantify in a readily comprehensible way – an amplification of a statement made about “broad distribution” may be “our products are distributed through 800 outlets compared with our nearest rival’s 300 outlets”.
- Step 13: When there are no further suggestions, score each factor and list the factors in order of importance.
- Step 14: Provide some explanation of the factors in the form of supporting paragraphs on a separate sheet.
- Step 15: Assess the significance of the SWOT analysis completed.

- Step 16: Create and execute an action plan to tackle weaknesses, capitalise on strengths and opportunities and deal with threats.
- Step 17: Use the analysis and action plan as a review tool before important decisions, so that decisions fit with what the analysis suggests.

RANKING STRENGTHS AND WEAKNESSES

Strengths matter only if a business can use them to exploit an opportunity or counter a threat. Similarly, a weakness is problematic if it relates to a threat. Therefore an external factor can be an opportunity or a threat. For example, if new technology is becoming available and a power tools company serving the construction industry has an excellent product development department that can take advantage of the new technology, this is an opportunity. In contrast, if a business cannot make use of the new technology, there is a threat from substitution¹ if rivals make use of the technology. The analysis should be undertaken bearing in mind the objective of strategic planning – to gain sustainable competitive advantage. A strength is a potential source of competitive advantage, such as core competencies or financial strength. As competitive advantage can only be sustained if customer needs are addressed, the market analysis is an important input into the SWOT analysis. To derive real advantage from a strength, it must be useful in satisfying the needs of customers. Similarly, if a weakness relates to specific customer’s needs, this should be addressed as a matter of priority.

Figure A7.1 provides a non-exhaustive checklist of factors that may be relevant to a SWOT analysis. However, each SWOT analysis will have to be tailored and made specific to the business under examination.

Ranking opportunities and threats, factors for consideration:

| Internal | |
|-------------------------------------|----------------------------------|
| Strengths | Weaknesses |
| Market dominance | Low market share |
| Core competencies | Few core competencies |
| Economies of scale | Old plant |
| Low-cost position | High cost base |
| Leadership and management skills | Weak balance sheet and cash flow |
| Financial resources | Low R&R capability |
| Manufacturing skills and technology | Undifferentiated product |
| Research and development | Weak positioning |
| Brand and reputation | Quality problems |
| Differentiated products | Lack of distribution |

Figure A7.1 Factors relevant to a SWOT analysis. (Source: Based on Lynch (2000))

¹ Substitution: substitute products that perform the same function or satisfy the same need as an existing product. The threat from substitute products is particularly severe if the substitute product is cheaper or more cost effective. Whole industries have been wiped out by substitutes.

| External | |
|-------------------------------|---|
| Opportunities | Threats |
| Technology innovation | New market entrants |
| New demand | Competitive price pressure |
| Diversification opportunity | Higher input prices |
| Market growth | Changing customer needs |
| Demographic and social change | Consolidation among buyers |
| Favourable political support | Threat from substitutes |
| Economic upswing | Capacity growth outstrips demand growth |
| Acquisition and partnerships | Cyclical downturn |
| Cheap funds | Demographic change |
| Trade liberalisation | Regulation and legislation |
| | Threat from imports |

Figure A7.1 (Continued)

REFERENCE

Lynch, R.(2000) *Corporate Strategy*, Prentice Hall.

Appendix 8

PEST Analysis

This appendix should be read in conjunction with Section 10.7.4.

UNDERTAKING PEST ANALYSIS

Political

Local, national and international political changes can affect both costs and demand. Issues to consider are:

- Direct and indirect taxes, such as income tax and VAT, influence consumer spending and market demand.
- Corporate taxation has an impact on the profitability of a business.
- Public spending by central and local government has a direct impact on the level of demand within the economy.
- Regional and industrial policy can affect businesses at a micro level and the availability of regional grants or other forms of assistance will boost local economies.
- Monetary policy and the level of interest rates will affect demand and a business's ability to service its debts.
- Exchange rate policy can have a critical effect on importers and exporters.
- Changes in international trade can create new markets.
- Competition law lays down rules on what a business can and cannot do and may be a crucial factor in the case of a merger or acquisition.
- Regulation and deregulation can have a dramatic impact on the business environment and individual business sectors.
- Education and training have a long-term impact on a business's ability to recruit suitably qualified staff and to compete in international markets.

Economic

Local, national and international economic factors to consider are:

- *Business cycle*: Developed economies often follow a pattern known as the business cycle where periods of faster growth are followed by years of slower growth or even recession. Some sectors, such as construction, advertising, leisure and restaurants are more susceptible to the impact of the business cycle than others, such as the manufacturers of food stuffs, where demand is less critical and tends to be more constant.
- *Employment levels*: These are closely related to the economy's position within the business cycle but also the state of the local economy. High levels of unemployment in a region will reduce demand but will also mean that labour is easier and cheaper to hire.

- *Inflation*: This can affect a business in many ways. For example, if the rate of increase in the price of raw materials is greater than the rate of inflation for the business's products, then the business will experience a fall in profitability in time.
- Interest rates and exchange rates, as mentioned under political factors, can critically affect a business's profitability.
- Exchange rates can make goods more or less expensive to overseas customers.
- *House prices and stock market prices*: The growth or fall of house prices and the movement in stock market levels affect consumer confidence and hence consumer spending.

Social

Shifts in a country's demography and social cultural values usually occur over many years. However, with improvements in communication and increased employee mobility between countries, the speed of social and demographic change can be expected to increase.

- *Population growth*: The rate of growth of the population will have a direct impact on the size of the potential addressable market for a product or service. Population growth is typically higher in developing countries.
- *Age structure*: In the developed western world economies are experiencing a significant increase in the average age of their populations. Differences in age structure of the population have implications for the overall level of saving compared with consumer spending and the relative sizes of the working and dependent sections of the population.
- *Social and cultural shifts*.

Technological

Changes in technology can have a rapid and dramatic impact on the economy. Issues to consider include:

- *Level of research and development by competitors*: This will provide an indication of whether any changes in technology-driven production processes or new products should be anticipated.
- *New markets*: Does the introduction of new technology create a new market for a particular technology-based product or service?
- *Rate of adoption of new technology*: It is often a considerable time before new technology gains mass-market appeal. The business plan must examine how long it will take the new product to penetrate the market.
- *Production methods*: How might technology be utilised to improve production methods within the business, and how might competitors utilise technology to gain competitive advantage?

Later versions of PEST include both legal issues (making SLEPT), environmental issues (making PEEST), or legal and environmental issues (making SLEEPT). A possible definition for legal and environmental factors is as follows:

- *Legal factors*: Changes in the law that might affect a firm (usually included in P (Political)).
- *Environmental factors*: Green factors are becoming increasingly important to businesses; a business's environmental credentials will be linked to its reputation and corporate image.

Appendix 9

VRIO Analysis

This appendix should be read in conjunction with Section 10.7.6.

VRIO ANALYSIS

To conduct a resource-based analysis of a business, Barney (1991) proposes a structured approach based on analysing whether a resource is Valuable, Rare and Imitable and whether the organisation is taking advantage of the resource.

- *Valuable*: A resource is valuable if it can be used, for example, to increase market share, achieve a cost advantage or charge a premium price (these features of a resource are not mutually exclusive and hence a resource may have multiple attributes). Barney suggests this question has to be answered first because a resource that is not valuable or is irrelevant cannot be a source of competitive advantage.
- *Rare*: If a valuable resource is not available to all competitors it is “rare” and therefore a potential source of competitive advantage. Rarity is important because if competitors possess the same resources, there is no inherent advantage in that resource. Of course different businesses can configure the same resources differently to achieve competitive advantage, but this is not the focus of the resource-based view of the firm.
- *Imitable*: If a resource is not readily copied or imitable, then the resource is a potential source of competitive advantage. To be advantageous the resource must be difficult or expensive for competitors to imitate or acquire, such as brand recognition/perception. If a resource is easy to imitate it offers only a temporary advantage, not a sustainable one.
- *Organisation*: A business must be capable of taking advantage of the resources at its disposal. If a resource is available, rare and difficult to imitate, a business must be able to exploit it, otherwise it is of little use. This may require reorganising the business.

Table A9.1 Resource-based analysis of a business

| Resource characteristics | | | | Strategic implications | | |
|--------------------------|------|-------------------|--------------------------|-----------------------------------|--------------------------------|--|
| Valuable | Rare | Costly to imitate | Organisation exploits it | Competitive implication | Impact on economic performance | SWOT category |
| No | – | – | No | Competitive disadvantage | Below normal | Weakness |
| Yes | No | – | ↑ | Competitive parity | Normal | Weakness or strength |
| Yes | Yes | No | ↓ | Temporary competitive advantage | Above normal | Strength and core competence |
| Yes | Yes | No | Yes | Sustainable competitive advantage | Above normal | Strength and long-term core competence |

The VIRO analysis framework illustrated in Table A9.1, which is based on the resources analysis proposed by Burney, links the VIRO resource analysis with strategic implications such as competitive advantage, the likely economic impact on the business and what this means in terms of SWOT (strengths, weaknesses, opportunities and threats) analysis.

REFERENCE

Barney, J.B. (1991) "Firm Resources and Sustained Competitive Advantage", *Journal of Management*, Vol. 17, No. 1.

Appendix 10

Value Chain Analysis

This appendix should be read in conjunction with Section 10.8.6.

CONFIGURATION OF RESOURCES

Competitive advantage is derived in part from the configuration of resources rather than simply the uniqueness of those resources. Therefore the analysis of a business should analyse the linkage between resources and how they form part of a system with the objective of adding value. This is an important concept as it can be applied right across a business and affects all major processes. Value added is the amount by which the selling prices exceed input costs. Input costs include bought-in products and services, salaries and the cost of capital equipment. Businesses exist to add value to a product or service. The ability to add value is closely linked to profitability. The identification of value-added will allow a business to focus on improvements or strategic change on areas where little value is added. If any one primary activity is making a loss for instance, it may be appropriate to outsource, provided this does not introduce extensive risk, which is difficult to manage.

Michael Porter's concept of a value chain is a useful tool to examine value added across a business (Porter 1991). By examining, modifying and managing the value chain (primary sequential activities of a business) can produce sustainable competitive advantage. Porter states: "competitive advantage results from the business's ability to perform the required activities at a collectively lower cost than rivals, or perform some activities in unique ways that create buyer value and hence allow the business to command a premium price".

The value chain identifies five primary and four support activities as illustrated in Figure A10.1. A principal use of value chain analysis is to identify a strategy mismatch between different elements of the value chain. If a company competes on the basis of low costs, then every part of the value chain should be directed towards low cost. Friend [2004] provide a topical example and refer to low cost airlines which have looked at every aspect of the value chain and taken out costs at all stages of their business delivery. "Bookings are taken only via the internet rather than through travel agents; seats cannot be reserved; there are no paper tickets, free meals or drinks or lounges; and flights depart from secondary airports with lower landing fees."

The five primary activities are the sequential logistics, production and marketing processes. The primary activities can also be thought of as the main vertical functions of a business:

- Inbound logistics is the activity of receiving goods or services from suppliers and moving them onto the operations activity.
- Operations is where the production of the product or services takes place. Production may be broken down into further steps, for example producing intermediate goods from raw materials and then turning intermediate goods into the final product. Make or buy decisions can be made at every stage.

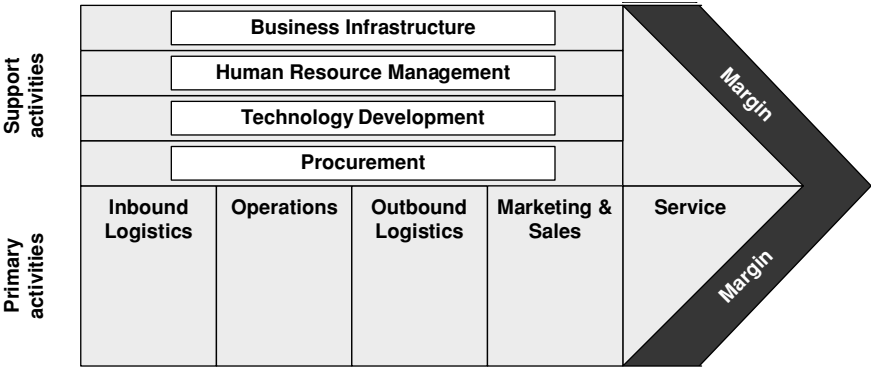


Figure A10.1 The value chain. Source: Porter (1991)

- Outbound logistics covers order fulfilment, which is the warehousing of the finished goods and the distribution of the products or service to the customer. This is commonly outsourced.
- Marketing and sales includes pricing, packaging and advertising as well as market research.
- Services refers mainly to after-sales service.

Support activities are horizontal in that they contribute to the different primary activities. For instance the procurement department will deal with purchasing across all of the functions. The value chain has four support activities.

- Business infrastructure includes activities such as accounting, facilities, planning and general administration.
- Human resources management covers recruitment, training, labour relations and salaries.
- Technology development includes the development of new products or services or the enhancement of existing products and services.
- Procurement includes the purchasing of raw materials or intermediate goods as well as vehicles, office supplies and energy supplies.

A principal use of the value chain analysis is to identify a strategy mismatch between different elements of the value chain. If a company competes on the basis of low costs, then every part of the value chain should be geared to low cost. Friend (2004) uses the example of budget airlines, which have looked at every aspect of the value chain and taken costs out at all stages. Bookings are taken only via the internet rather than through travel agents; seats cannot be reserved; there are no paper tickets, free meals or drinks or lounges; and flights depart from secondary airports with lower landing fees.

REFERENCES

Friend, G. and Zehle, S. (2004) *Guide to Business Planning*, Profile Books Limited, London. OSC from ratio 211

Porter, M.E. (1991) "Towards a Dynamic Theory of Strategy", *Strategic Management Journal*, Vol. 12.

Appendix 11

Resource Audit

This appendix should be read in conjunction with Section 10.8.6.

The objective of a resource audit is to identify the key resources and ascertain how effectively they are utilised. The three primary resource attributes of a business are commonly recognised to be operational, human and financial, which are discussed in turn below.

RESOURCE AUDIT

- *Operational resources:* Operational assets, which consist of a variety of assets, not all of which may be recognised in the balance sheet, include: tangible assets such as buildings, plant and equipment; intangible assets such as brand names, rights and patents; and operational methods and systems, for example a just-in-time manufacturing system or a flexible manufacturing system. The identification of resources and whether they are put to good use may reveal extensive waste. For example, in recent years businesses have looked critically at the land and buildings they own. Lease-back deals and sell-offs have freed up substantial amounts of capital, and in some cases additional uses have been found for the land and buildings. An important task is to identify all of the resources that are not listed as assets on the balance sheet. There may be unused patents or rights, which could be used to economic advantage. Organisational resources comprise the overall organisational structure, departmental structures and the reporting systems of a business. They include the staffing of the departments and the management control assumptions. Analysis of the organisation may reveal duplication of activities, redundant activities or solely communication activities that are not adding value.
- *Human resources:* Leverage of human capital is seen as an untapped opportunity in improving competitiveness. As businesses become more knowledge based and dependent, human resources are increasingly viewed as a strategic asset. Annual reports of larger companies include information on human resources in an increasingly formalised manner. The Chartered Institute of Personnel and Development in the UK has published a reporting framework on the value of human resources, to aid annual reporting of resources.
- *Financial resources:* Financial resources include all forms of funding – capital, debt, loans, vendor finance and creditors. Return on capital employed is perhaps the final arbiter of how successful a business is. Financial resources are crucial to the development and survival of a business. Most business plans have some kind of growth objective. Any new business activity, even within an existing business, requires funding.

Box A11.1, which includes an extract of CIPD bulletin “Evaluating Human Capital”, emphasises the merit of evaluation of how the management of people contributes to business performance.

Box A11.1 Human capital**Extracts of CIPD bulletin “Evaluating Human Capital”, published in 2004**

Since 1997, the Chartered Institute of Personnel and Development (CIPD) has been investigating the link between business performance and the way in which people are managed. CIPD consider a wealth of evidence has been produced demonstrating that the key to competitiveness lies with the people of organisations, and particularly with the ability of the organisation to leverage the knowledge and skills of those people. Yet, CIPD believe, most organisations still find it difficult to produce coherent measures of the worth and contribution of their people, that will be of use to their various stakeholders. CIPD consider they are making strenuous efforts to develop tools and processes to enable organisations to better evaluate their human capital and communicate this to those who make the most important decisions about the long-term performance and viability of organisations.

Study

CIPD, in pursuit of the desire to develop some common principles upon which they can build practical guidance for practitioners, commissioned a six-month study, investigating the ways in which 10 major UK-based firms from a variety of sectors evaluate their human capital. The findings are summarised in their bulletin entitled “Evaluating Human Capital” published in 2004. Extracts of the bulletin are included below.

Aims

The specific aim of the study was to investigate the contribution that human capital makes to business performance and the existing means of identifying and valuing that contribution. Additionally it aimed to relate the theoretical aspects of human capital to actual practice. The researchers were Professor Harry Scarbrough of Warwick Business School, and Doctor Juanita Elias at Cardiff University. The researchers specific aims were: (1) to create a framework of shared understanding about the nature of human capital; (2) to identify some common principles for the analysis of human capital; and (3) to identify a possible process for the development of metrics for measuring the impact of human capital.

Findings

The study found a number of barriers and reasons why managers do not make more effort to evaluate human capital. Additionally the report found there is no single measure that can adequately reflect the richness of the employee contribution to corporate performance. As declared in the bulletin, the analysis suggests that measures are less important than the activity of measuring – of continuously developing and refining understanding of the productive role of human capital within particular settings. Of significance, the study considers that by embedding such activities in management practices, and linking them to the business strategy of the firm, may enable firms to develop “a more coherent and ultimately strategic approach to one of the most powerful, if elusive, drivers of competitiveness”.

Evaluation

This is not to suggest that metrics and other forms of information are irrelevant to the task of managing human capital. Rather, the report suggests that such information flows need to be embedded in wider processes of dialogue and exchange which, over time, enhance the knowledge of managers, employees and investors as to the value of human capital. The study concludes that the increasingly critical effect of human capital has not been matched by advances in management and accounting practices that would allow that role to be properly reflected in management decision making and the operation of capital markets. The study considers that without advances in the internal measurement and reporting of human capital, management are unable to fully recognise the value of their employees' competencies and commitment for business performance. The bulletin states that without advances in the external reporting of human capital, capital markets are unable to allocate capital efficiently to firms whose principal assets are not reflected in their balance sheets.

Web address: www.cipd.co.uk. Address: CIPD, CIPD House, Camp Road, London SW19 4UX

Appendix 12

Change Management

This appendix should be read in conjunction with Section 10.8.7.

GENERIC CRITICAL SUCCESS FACTORS FOR ANY ORGANISATIONAL CHANGE PROJECT

There are a series of issues that are commonly recognised as “ingredients” of a successful change programme. The absence of any of these ingredients can lead to project failure and hence must be considered as risks. These issues include:

- *Organisational effectiveness*: Understanding the elements of organisations that lead to organisational effectiveness such as issues including strategy, structure, systems, staff, style, shared values and skills.
- *Information gathering*: Gaining clarification that a problem exists and that further action is warranted and required. Understanding specifically what is not working well and what corrective action is required.
- *Objectives*: Correctly translating the drivers for change into clear unambiguous objectives that are readily understood by the organisation. Comprehension is aided if they are short sharp succinct statements rather than long wordy “monologues”.
- *Translation of objectives*: Ensuring that the change project deliverables are a direct translation of the objectives and that deliverables are defined for all of the objectives. Additionally senior management readily understand the deliverable descriptions and hence they must not be “woolly” statements but hard outputs like restructuring, a new finance process or the appointment of a new staff member.
- *Language*: Ensuring a consistent language is used in all documents to describe both elements of the organisation, its structure and the change project.
- *Speed of change*: Adopting an appropriate rate of change to suit the scale and complexity of the change. That is, not being overoptimistic in change planning. Management is often too consumed at the strategic end and underestimates the scale of the challenge in executing programmes. Or the perceived urgency for change overrides appropriate levels of internal consultation.
- *Management team*: Establishing a change management team composed of members with the right blend of skills (reflecting the primary areas of change) and individuals who were responsible for the original assessment of the need for the change, to ensure continuity. Additionally establishing subgroups responsible for discrete elements of the change project so that the project is broken down into manageable parts. Where subgroups are involved they must have the ability to seamlessly integrate with each other. Otherwise individuals will be working at cross-purposes to each other resulting in the different pieces of the jigsaw not fitting together.

- *Change champion*: Having an appropriate change “champion” who has sufficient authority to ensure the change is implemented and overrides individuals who try to block changes that threaten their own interests and standing.
- *Change plan*: Establishing an activity plan or road map for the change effort that is realistic, effective and clear. The activity plan is the schedule for the change project and must include the key activities that reflect the objectives, the logical chronological sequence in which they will be carried out and the interrelationship between the activities. The activities reflect the change project deliverables.
- *Support*: Commitment planning – identifying the key people and groups whose commitment is needed to accomplish the change. For any large change process there is a critical mass of individuals or groups whose active commitment and support is necessary for the change to occur.
- *Managing personal transitions*: Recognising the common reaction cycle of staff to planned changes and how the cycle is accommodated in the process. John Hayes and Peter Hyde propose a model, which includes shock, denial, depression, letting go, testing, consolidation and internalisation/reflection.
- *Progress*: Monitoring progress to see that the deliverables are being produced to schedule and that they meet the objectives.
- *Training*: Ensuring staff are provided with the right training and development to enable them to acquire new skills and competencies to implement the changes where these entail the introduction of new disciplines and or processes.
- *Attitudes*: Modifying the attitudes and behaviours of individuals and groups to adopt new working practices which in the past have been resisted through self-interests. Many of these “softer” elements are quintessential to achieving lasting success but are not given the same level of attention as the hard measures of cost and time.
- *Receptivity to change*:
 - Developing a willingness and a readiness for change by not merely stressing the positive aspects of the proposed change but by destabilising the status quo, so that the forces for change exceed the forces for stability.
 - Drawing staff into the process rather than treating them as objects of or obstacles to change. Making them responsible for it. Communicating the change to draw staff into the discussions and debates about the need for and the form of the change and allowing them the freedom to discuss the issues involved openly, to get them to convince themselves of the need for the change. “People support a world that they help create”, Dale Carnegie.
 - Communicating to staff the pressures for change on a repetitive basis highlighting the organisation’s shortcomings to pave the way for change.
- *Performance feedback*: Providing feedback on the performance of processes or services. This provides an organisation with the opportunity to draw attention to any discrepancy between actual performance and desired present and future performance. The feedback has to be in a form that staff can relate to and act on. Feedback has to be timely. If it is very old news it has little potency.
- *Uncertainty*: Establishing a regular and effective communication process to significantly reduce people’s levels of uncertainty. One of the major mistakes organisations make when introducing change is to fail to recognise and deal with the real and legitimate fears and concerns of managers and staff. Organisations need to recognise that change does create uncertainty and that some individuals may become so unsettled and anxious that they seek alternative employment before finding out what the changes entail. Close attention also needs

to be paid to an organisation's past history of change and the extent to which this reduces or enhances people's fears and concerns.

- *Involvement*: Identifying and enrolling those whose assistance is necessary and those who are essential to make change happen. Where it is possible, ensuring that all those closely affected are involved in some if not all aspects.
- *Reinforcing desired behaviour*: Within organisations people generally do things that bring rewards or avoid criticism. Consequently one of the most effective ways of sustaining the momentum for change is to reinforce the kinds of behaviour required to make it successful.
- *Resources*: Where staff and managers have to work long hours merely to get their normal work done, additional resources are provided whether these are financial, human or both. Case studies show that where additional resources have not been provided at the outset, the project has suffered and the resources had to be provided eventually anyway to "catch up" on uncompleted tasks.

Appendix 13

Industry Breakpoints

This appendix should be read in conjunction with Section 10.8.8.

The following description of breakpoints is predominantly based on the description provided by Paul Strebel within his article called “Breakpoint: How to Stay in the Game”, included within the *Financial Times Mastering Management* book published by Pearson Education Limited.

An industry breakpoint occurs when the market is presented by a new offering so superior in terms of customer value (arising from delivered cost) that it completely changes the rules of the competitive game. More and more frequently, industries are being shaken by dramatic shifts in competitive behaviour that make the current strategies obsolete. Newcomers emerge out of nowhere to dislodge the established industry leaders. A new offering can cause a sharp shift in the industry’s growth rate while the competitive response to the new business system results in a dramatic realignment of market shares. The breakpoints that everyone will be familiar with are those that occurred in the personal computer industry.

- *Breakpoint*: Introduction by Apple offering individuals the possibility of decentralised computing power (enhanced customer value arising from a convenience and cost that was on a completely different level from that provided by centralised mainframes).
- *Breakpoint*: Introduction of a personal computer by IBM that became an industry standard (enhanced customer value in terms of predominantly price).
- *Breakpoint*: Introduction by Apple of the Macintosh, with a completely new level of user-friendliness (enhanced customer value in the form of hard discs, better graphics, greater speed and particularly new operating software).
- *Breakpoint*: Introduction by such companies as Compaq of quality with portability at a very competitive price, driven by pronounced competition from decreasing demand as a result of a recession in the US in the late 1980s (enhanced customer value in terms of lower cost and greater functionality).
- *Breakpoint*: Move towards laptops, workstations and integrated networks, triggered by more powerful chips supplied by Intel and software supplied by Microsoft (enhanced customer value in terms of lower cost and greater functionality).

There is a danger that the description of the causes of breakpoints can be oversimplified. For instance it could be assumed that all the breakpoints for improvements in personal computers were driven by improvements in technology. However, this is not the case, as can be seen from the bullet points above, as the US recession was a trigger or breakpoint in the overall development of the computer industry. Breakpoints can be triggered by many other factors than technology, such as economic cycle, government policy and shifting consumer preferences.

Strebel (1992) makes the important distinction between divergent and convergent breakpoints. He describes the two forms of breakpoints as follows:

- Divergent breakpoints are associated with sharply increasing variety in the competitive offerings, resulting in more value for the customer.

- Divergent breakpoints arise when a competitor discovers a new business opportunity and seeks to explore its boundaries, making new offerings.
- Convergent breakpoints are associated with sharp improvements in the systems and processes used to deliver offerings, resulting in lowered delivered cost.
- Convergent breakpoints arise when (1) imitation of innovation by competitors has reached a point where it is impossible to differentiate offerings and offerings have converged, (2) returns made on the original innovation have declined, (3) businesses have exhausted improvements in total quality management, continual improvement and restructuring of the business system, in an attempt to cut costs and maintain market share, (4) cost cutting and consolidation has run its course and it is now extremely difficult to squeeze further costs out and (5) businesses now seek new businesses opportunities.

REFERENCE

Strebel, P. (1992) *Breakpoints: How Managers Exploit Radical Business Change*, Part 1, Harvard Business School Press.

Appendix 14

Probability

This appendix should be read in conjunction with Section 12.8.1.

LOGIC PROBABILITIES

When the range of possible outcomes can be foreseen, assigning a probability to an event is a matter of simple arithmetic. Using a coin again for the purposes of illustration, say you are going to toss it three times. What is the probability of only two tails? The set of all possible outcomes from tossing three coins is as follows (where, for example, one outcome from three tosses of the coin is three tails, or TTT): TTT, THH, HTH, TTH, HTT, THT and HHH. Of the eight possible outcomes, only three involve two tails. Hence there is a 3 in 8 chance of two tails. The probability is $\frac{3}{8}$ or 0.375. Looking at it another way, each outcome has a $\frac{1}{8} = 0.125$ chance of occurring, so the probability of two heads can be found by adding $0.125 + 0.125 + 0.125 = 0.375$. The likelihood of not getting two tails can be determined in one of two ways. Either of the two approaches outlined may be used. A simple method is to remember that as probabilities must add to 1, failure to achieve two heads must be $1 - 0.375 = 0.625$. This has highlighted two important rules. (1) If there are a series of outcomes where A occurs during n outcomes in total, the probability of event A is calculated by $a \div n$. The abbreviated way of writing this relationship is $P(A) = a \div n$. (2) The probability of an event not occurring is equal to the probability of it happening subtracted from one. Abbreviated this means $P(\text{not } A) = 1 - P(A)$.

OBJECTIVE PROBABILITIES

Objective probabilities are based on information usually gathered from past experience. So, for example, the manager of a railway operating company leasing rolling stock may be able to provide information concerning the possible life of a newly purchased train based on the records of similar trains purchased in the past.

SUBJECTIVE PROBABILITIES

On many occasions, especially with business problems, probabilities cannot be found from pure logic or past data is neither appropriate nor available. In these circumstances, they have to be allocated subjectively. Subjective probabilities are based on opinion, experience or intuition. After considering all the available information, a probability value that expresses our degree of belief on the likely outcome is specified. You might say, for example, “considering current circumstances and my knowledge of the past behaviour of our competitors, I think that there is a 15% chance (i.e. a 0.15 probability) that they will imitate our new software product within one year”. Such judgements are acceptable as the best that you can do, when hard facts are not available. However, it should be borne in mind that as subjective probability expresses a

person's degree of belief, it is personal. Using the subjective method, different people can be expected to assign different probabilities to the same risk event.

RELATIONSHIPS OF PROBABILITY

To be able to apply conditional probability including Bayes' theorem it is necessary to understand some basic concepts. The first is "complement of an event".

The complement of an event A is defined as the event consisting of all sample points that are not in A . A simple way of explaining this concept is with the aid of a Venn diagram. See Figure A14.1, which illustrates the concept of complement. The rectangular area represents the sample space for the evaluation and as such contains all the sample points within the sample under examination. The circle represents event A and contains only the sample points that relate to A . The shaded region contains all the sample points not in event A , and by definition is the complement of A . So as an example, the sample space could represent all members of a business unit within a pharmaceutical company and the circle (event A) could contain all those that had a PhD in chemistry.

In any probability application either event A or its complement A^c must occur. Hence:

$$P(A) + P(A^c) = 1$$

and solving the equation for $P(A)$ we obtain the following result: $P(A) = 1 - P(A^c)$. Applying this equation in practice, considering the case of a telecommunications sales manager, who after reviewing sales reports states that 85% of new customer contacts result in a "no sale". By permitting A to denote the event of a sale and A^c to represent the event of no sale, the manager is stating that $P(A^c) = 0.85$. Using the equation $P(A) = 1 - P(A^c)$ we see that in this example:

$$\begin{aligned} P(A) &= 1 - P(A^c) \\ &= 1 - 0.85 \\ &= 0.15 \end{aligned}$$

Hence we conclude that a new customer contact has a 0.15% probability of resulting in a sale.

The second concept to appreciate is the "addition rule for intersecting events". The addition rule is used to find the probability of two events occurring, that is the probability of event A occurring, event B occurring or both. Given two events A and B , the union of A and B is defined as follows: the union of A and B is the event containing all sample points belonging to A or B or both. The union is denoted by $A \cup B$. The Venn diagram illustrating the union of two events is shown in Figure A14.2. The fact that the circles overlap, indicates that some of the sample points are contained in both A and B . The definition of the intersection of A and

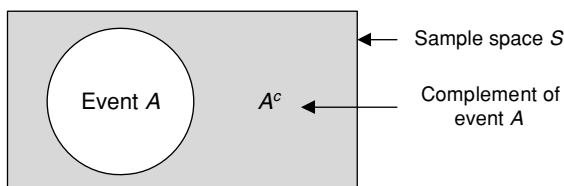


Figure A14.1 Complement of event A

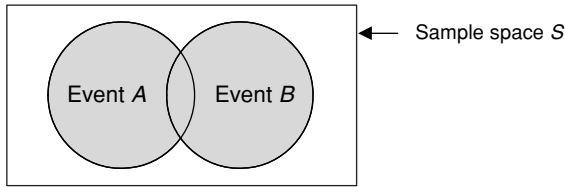


Figure A14.2 Union of events A and B

B follows: given two events A and B , the intersection of A and B is the event containing the sample points belonging to both A and B . The intersection is denoted by $A \cap B$.

The addition rule is used to calculate the probability of the union of two events. The addition law is written as follows:

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

To understand this addition law intuitively, the first two terms $P(A) + P(B)$ cover all of the sample points in the union of events A and B ($A \cup B$). However, as the sample points in the intersection between ($A \cap B$) are in both A and B , when the calculation $P(A) + P(B)$ is completed it is effectively counting the sample points in ($A \cap B$) twice. Hence this duplication is corrected by subtracting $P(A \cap B)$.

The third concept to appreciate is the “addition rule for mutually exclusive events”. The addition rule is used to find the probability of two events occurring, that is the probability of event A and B occurring together. Two events are said to be mutually exclusive if the events have no sample points in common. Hence a requirement for events A and B , to be mutually exclusive, must be non-intersection or commonality between the sample points contained in the two events. The Venn diagram illustrating the union of two mutually exclusive events is shown in Figure A14.3. In this case $P(A \cap B) = 0$. The addition rule for mutually exclusive events can be written as follows: $P(A \cup B) = P(A) + P(B)$.

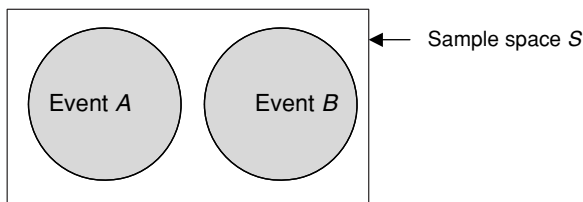


Figure A14.3 Mutually exclusive events A and B

CONDITIONAL PROBABILITY

Frequently the probability of one event is influenced by whether a related event has already occurred. For instance say we have an event A with probability $P(A)$. If we obtain new information and learn that a related event denoted by B has already occurred, it would be prudent to take advantage of this information by calculating a new probability for event A . This new probability of event A is called a conditional probability and is written $P(A | B)$. The notation “|” is used to indicate that we are considering the probability of an event given the condition event B has occurred. Therefore the notation $P(A | B)$ reads “the probability of A given B ”.

Table A14.1 Promotions over the last two years

| | Men | Women | Totals |
|----------|-----|-------|--------|
| Bonus | 73 | 21 | 94 |
| No bonus | 587 | 219 | 806 |
| Totals | 660 | 240 | 900 |

As an illustration of the application of conditional probability, consider the situation of the promotion status of male and female employees of a satellite sales office of a major software house in the south of England. There are 900 employees, 660 men and 240 women located in this satellite office. Over the past two years 94 employees have received bonuses. The specific breakdown of bonuses for male and female employees is included in Table A14.1.

After reviewing annual bonuses, a group of female employees raised a discrimination case on the basis that 72 male employees had received bonuses but only 22 female employees had received bonuses. The board argued that the relatively low number of bonuses awarded to female employees was not due to discrimination, but due to the fact that relatively few females are employed. Mapped below is how conditional probability can be used to analyse the discrimination charge.

- M = event an employee is a man
- F = event an employee is a female
- A = event an employee receives a bonus
- A^c = event an employee does not receive a bonus

Dividing the data values in Table A14.1 by the total of 900 employees enables us to summarise the available information with the following probability values:

- $P(M \cap A) = 73/900 = 0.081$ = probability that a randomly selected employee is a man *and* receives a bonus
- $P(M \cap A^c) = 587/900 = 0.652$ = probability that a randomly selected employee is a man *and* does not receive a bonus
- $P(F \cap A) = 21/900 = 0.023$ = probability that a randomly selected employee is a female *and* receives a bonus
- $P(F \cap A^c) = 219/900 = 0.243$ = probability that a randomly selected employee is a female *and* does not receive a bonus

As each of these values gives the probability of the intersection of two events, the probabilities are called joint probabilities. Table A14.2, which provides a summary of the probability information, is referred to as a joint probability table.

The values in the margins of the joint probability table provide the probabilities of each event separately. That is $P(M) = 0.733$, $P(F) = 0.266$, $P(A) = 0.104$ and $P(A^c) = 0.895$. These probabilities are referred to as marginal probabilities as a result of their location in the margins in the joint probability table. From the marginal probabilities it is possible to deduce that 73.3% of the employees are male, 26.6% are female, 10.4% received a bonus and 89.5% did not receive a bonus.

Table A14.2 Joint probability table

| | Men (M) | Women (F) | Totals |
|--------------------|-------------|---------------|--------|
| Bonus (A) | 0.081 | 0.023 | 0.104* |
| No bonus (A^c) | 0.652 | 0.243 | 0.895* |
| Totals | 0.733* | 0.266* | 0.999 |

*These figures are referred to as marginal probabilities.

The probability that an employee receives a bonus and is a man, using the previously defined notation, is described as $P(A \mid M)$. To calculate $P(A \mid M)$, we must recognise that this notation simply means that we are attempting to establish the probability of event A , the award of a bonus, and that (in this instance) the award will be made to a male M . Hence $P(A \mid M)$ tells us that we are concerned with the probability of a bonus being awarded to one of 660 men. As 73 of the 660 male employees received a bonus, the probability of a male employee receiving a bonus is $73/660 = 0.11$. In other words, taking a very simplistic view, male employees had an 11% chance of receiving a bonus over the past two years. To demonstrate how conditional probabilities such as $P(A \mid M)$ can be calculated directly from related event probabilities rather than from the frequency data of Table A14.2.

The conditional probability (the probability of A given B) that a bonus will be awarded to an individual given that the individual is a male can be calculated as:

$$P(A \mid M) = \frac{73}{660} = \frac{73/900}{660/900} = \frac{0.081}{0.733} = 0.11$$

We now see that the conditional probability $P(A \mid M)$ can be calculated as $0.081/0.733$. These figures can be found in Table A14.2. See that 0.081 is the joint probability of events A and M , where $P(A \cap M) = 0.081$. Additionally that 0.733 is the marginal probability that a randomly selected employee, that is $P(M) = 0.733$. So the conditional probability $P(A \mid M)$ can be calculated as the ratio of the joint probability $P(A \cap M)$ to the marginal probability $P(M)$. Hence:

$$P(A \mid M) = \frac{P(A \cap M)}{P(M)} = \frac{0.081}{0.733} = 0.11$$

The fact that conditional probabilities can be calculated as a ratio of a joint probability to a marginal probability provides the following general formula for conditional probability calculations for two events A and B . The conditional probability is known as:

$$P(A \mid B) = \frac{P(A \cap B)}{P(B)} \quad \text{or} \quad P(B \mid A) = \frac{P(A \cap B)}{P(A)}$$

These principles can now be applied to the issue of discrimination against female staff in the award of annual bonuses. The critical issue involves the two conditional probabilities $P(A \mid M)$ and $P(A \mid F)$. That is, what is the probability of a bonus, given that the employee is male and what is the probability of a bonus, given that the employee is female? Obviously if these two probabilities are equal there is a greater probability of being awarded a bonus if you are female, there is no basis for the discrimination argument. It has already been established that $P(A \mid M) = 0.11$. Now using the values in the joint probability table above and the general formula for conditional probability, it is possible to calculate the probability that an employee

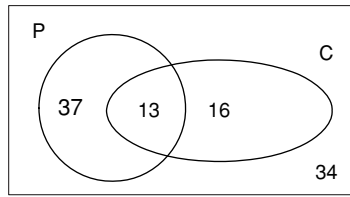


Figure A14.4 Venn diagram illustrating types of degree held by employees

is awarded a bonus, given that the employee is female. Using the formula above but replacing the “B” with an “F”, we obtain:

$$P(A | F) = \frac{P(A \cap F)}{P(F)} = \frac{0.023}{0.266} = 0.09$$

The conclusion we draw is that there is an 11% chance of receiving a bonus if you are male and a 9% chance of receiving a bonus if you are female. Although the use of conditional probability in isolation will never prove that discrimination exists, the results can add weight to the argument. However, in this instance the difference is marginal and there may have been external influences, which brought about the difference.

MULTIPLICATION LAW

Consider the situation where within the department of a pharmaceutical company there are 100 employees. Fifty of these employees studied physics at university, 29 studied chemistry and 13 studied both physics and chemistry (see below). The chance that an individual picked at random is found to have studied physics having already established that they studied chemistry may be represented by $P(M | B) = 13/29$ as there are 13 of the 29 employees who studied both physics and chemistry.

$$P(P | C) = \frac{P(P \cap C)}{P(C)} = 13/29 \text{ which can also be written as } P(P \cap C) = P(C | P) \times P(P)$$

So for events A and B :

$$\text{The multiplication rule states: } P(A \cap B) = P(B | A) \times P(A)$$

INDEPENDENT EVENTS

When one outcome is known to have no effect on another outcome, then the events are said to be independent. For example, if the probability of a machine breaking down is $1/12$ and the probability of stoppage of raw materials is $1/7$, then it is possible to find the probability of the two events happening together by multiplying the two probabilities, because the occurrence of one of these events does not affect the probability of the other. So

$$P(\text{breakdown and stoppage of suppliers}) = 1/12 \times 1/7 = 1/84$$

BAYES' THEOREM

In the previous description of conditional probability, I indicated that revising probabilities when new information is obtained is an important phase of probability analysis. Often we

Table A14.3 Historical quality data of two suppliers

| | Percentage good parts | Percentage bad parts |
|------------|--------------------------|-------------------------|
| Supplier 1 | 97 | 3 |
| Supplier 2 | 94 | 6 |

commence an analysis with the initial or prior probability estimates for specific events. Then having obtained additional information we update the prior probability values by calculating revised probabilities, referred to as posterior probabilities. Bayes’ theorem provides a means for making these probability calculations. As an application of Bayes’ theorem, consider an aircraft manufacturing firm that receives shipments of parts from two different suppliers. Let A_1 denote the event that a part is from supplier 1 and A_2 denote that a part is from supplier 2. Currently 72% of the parts purchased by the company are from supplier 1 and the remaining 28% are from supplier 2. Hence if a part is selected at random, we would assign the prior probabilities $P(A_1) = 0.72$ and $P(A_2) = 0.28$.

The quality of the purchased parts varies with the supplier. Historical data suggests that the quality ratings of the two suppliers are shown in Table A14.3.

If we let the letter G denote the event that the part is good and the letter B denote that the event is bad, the information in Table A14.3 provides the following conditional probability values.

$$P(G \mid A_1) = 0.97 \quad P(B \mid A_1) = 0.03$$
$$P(G \mid A_2) = 0.94 \quad P(B \mid A_2) = 0.06$$

The tree diagram in Figure A14.5 describes the process of the business receiving a part from one of the two suppliers and then discovering that the part is good or bad with a total of four potential outcomes; two correspond to the part being bad and two correspond to the part being good.

Each of the experimental outcomes is the intersection of two events, so the multiplication rule can be used to calculate the probabilities. For instance:

$$P(A_1G) = P(A_1 \cap G) = P(A_1)P(G \mid A_1)$$

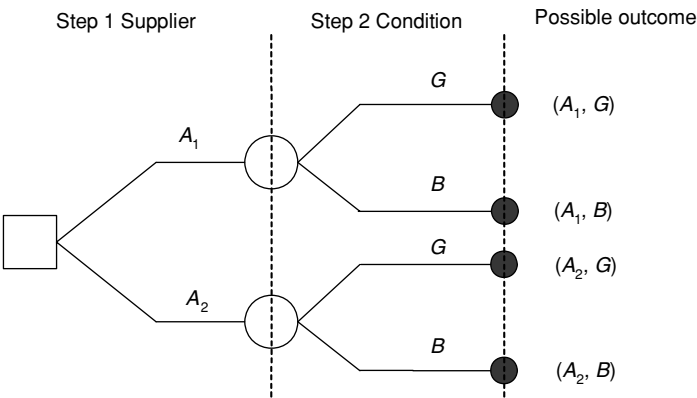


Figure A14.5 Tree diagram of two suppliers, A_1 and A_2

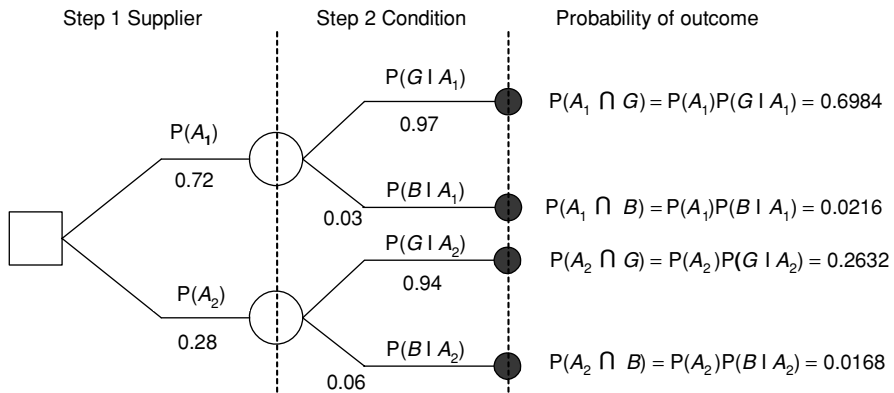


Figure A14.6 Probability tree diagram of two suppliers, A_1 and A_2

The process of calculating these combined probabilities can be illustrated by a probability tree (see Figure A14.6). From left to right through the tree, the probabilities for each branch at step one are prior probabilities and the probabilities for each branch at step 2 are conditional probabilities. To find the probabilities of each outcome, we simply multiply the probabilities on all the branches leading to the outcome. Each of these joint probabilities is included in Figure A14.6 along with the known probabilities of each branch.

Suppose that the parts from the two suppliers are used in the business's manufacturing process (on the basis that faulty parts are not detected on arrival) and that a machine breaks down as a result of a defective part. Bayes' theorem combined with Figure A14.6 can now be used to establish the probability that the part came from supplier 1 or 2. Letting the letter B denote the event that the part is bad, the objective now is to find the posterior probabilities $P(A_1 | B)$ and $P(A_2 | B)$. From the law of conditional probability, we know that:

$$\begin{aligned} P(A_1 | B) &= \frac{P(A_1 \cap B)}{P(B)} \text{ and in addition, referring to the probability tree, } P(A_1 \cap B) \\ &= P(A_1)P(B | A_1) \end{aligned}$$

To find the probability $P(B)$, we note from the probability tree that event B can occur in only two ways: $(A_1 \cap B)$ and $(A_2 \cap B)$. In consequence we have:

$$\begin{aligned} P(B) &= P(A_1 \cap B) + P(A_2 \cap B) \\ &= P(A_1)P(B | A_1) + P(A_2)P(B | A_2) \end{aligned}$$

Adopting the law of conditional probability and substituting $P(A_1 \cap B)$ with $P(A_1)P(B | A_1)$ and $P(B)$ with $P(A_1)P(B | A_1) + P(A_2)P(B | A_2)$ (from the probability tree) and writing a similar result for $P(A_2 | B)$, we obtain Bayes' theorem for the two events under examination.

Bayes' theorem (for the two events under examination)

$$P(A_1 | B) = \frac{P(A_1)P(B | A_1)}{P(A_1)P(B | A_1) + P(A_2)P(B | A_2)} \text{ (equation for event 1)}$$

$$P(A_2 | B) = \frac{P(A_2)P(B | A_2)}{P(A_1)P(B | A_1) + P(A_2)P(B | A_2)} \text{ (equation for event 2)}$$

Using the equation above for the probability that the bad product came from supplier 1 (equation for event 1), we have

$$P(A_1 | B) = \frac{P(A_1)P(B | A_1)}{P(A_1)P(B | A_1) + P(A_2)P(B | A_2)}$$

$$P(A_1 | B) = \frac{(0.72)(0.03)}{(0.72)(0.03) + (0.28)(0.06)} = \frac{0.0216}{0.0216 + 0.0168} = 0.5625$$

Using the equation above for the probability that the bad product came from supplier 1 (equation for event 1), we have

$$P(A_2 | B) = \frac{P(A_2)P(B | A_2)}{P(A_1)P(B | A_1) + P(A_2)P(B | A_2)}$$

$$P(A_2 | B) = \frac{(0.28)(0.06)}{(0.72)(0.03) + (0.28)(0.06)} = \frac{0.0168}{0.0216 + 0.0168} = 0.4375$$

It can therefore be concluded that if a bad part is encountered during manufacture there is likely to be a more than 50–50 chance that it came from supplier 1. Note that the two aggregated results ($0.5625 + 0.4375$) equal 1.

Bayes' theorem is applicable when the events for which we wish to calculate posterior probabilities are mutually exclusive and their union occupies the entire sample space.

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