



# Risk Management

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# **Risk Management**

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# CHAPTER 1. UNDERSTANDING RISK

Human beings are considered the most intelligent creatures on this earth. The thinking power available to human beings is enormous and this has led human beings to define their style of living and distinguish between good and bad situations. The criteria for deciding whether the situation is good or bad depend upon individual's perception. However, one thing is sure — that human beings always prefer and strive for happy situations and wants to avoid the adverse ones. Actually, the zeal to be happy always has given birth to the jargon risk!

#### The Concept of Risk

People express risk in different ways. To some, it is the chance or possibility of loss; to others, it may be uncertain situations or deviations or what statisticians call dispersions from the expectations. Different authors on the subject have defined risk differently. However, in most of the terminology, the term risk includes exposure to adverse situations. The indeterminateness of outcome is one of the basic criteria to define a risk situation. Also, when the outcome is indeterminate, there is a possibility that some of them may be adverse and therefore need special emphasis. Look at the popular definitions of risk.

According to the dictionary, risk refers to the possibility that something unpleasant or dangerous might happen.

Risk is a condition in which there is a possibility of an adverse deviation from a desired outcome that is expected or hoped for. At its most general level, risk is used to describe any situation where there is uncertainty about what outcome will occur. Life is obviously risky.

The degree of risk refers to the likelihood of occurrence of an event. It is a measure of accuracy with which the outcome of a chance event can be predicted. In most of the risky situations, two elements are commonly found:

• The outcome is uncertain, i.e., there is a possibility that one or other(s) may

occur. Therefore, logically, there are at least two possible outcomes for a given situation.

• Out of the possible outcomes, one is unfavourable or not liked by the individual or the analyst.

#### **Risk vs. Uncertainty**

Uncertainty is often confused with the risk. Uncertainty refers to a situation where the outcome is not certain or unknown. Uncertainty refers to a state of mind characterised by doubt, based on the lack of knowledge about what will or what will not happen in the future. Uncertainty is said o exist in situations where decision- makers lack complete knowledge, information or understanding concerning the proposed decision and its possible consequences.

Risk is sometimes defined as an implication of a phenomenon being uncertain – that may be wanted or unwanted.



Uncertainty can be perceived as opposite of certainty where you are assured of outcome or what will happen. Accordingly, some weights or probabilities can be assigned into risky situations but uncertainty, the psychological reaction to the absence of knowledge lacks this privilege.

Decision under uncertain situations is very difficult for the decision-maker. It all depends upon the skill, the judgment and of course luck. Uncertainties and their implications need to be understood to be managed properly.

Uncertainty being a perceptual phenomenon implies different degrees to different person. Assume a situation where an individual has to appear for the first in the newly introduced insurance examination.

- (a) an individual student undergone a training in insurance.
- (b) an individual with training or experience in insurance.

A's perception towards uncertainty of performance in examination is different from that of B. Nonetheless, inboth situations, outcome that is the questions which will be asked in the examination are different.

Uncertainty may be -

(a) Aleatory uncertainty – uncertainty arising from a situation of pure chance, which is known; or

(b) Epistemic uncertainty – uncertainty arising from a problem situation where the resolution willdepend upon the exercise of judgment.

Risk	Uncertainty
Quantifiable	Non-quantifiable
Statistical Assessment	Subjective Probability
Hard Data	Informed Opinion

Rick	VS	Uncertainty
Tribu	<b>v</b> .	Uncertainty

#### Loss and Chance of Loss

A risk refers to a situation where there is the possibility of a loss. What is a loss? Loss has been defined inmany ways. Loss, in accounting sense, means that portion of the expired cost for which no compensatingvalue has been received. Loss refers to the Act or instance of losing the detriment or a disadvantage resulting from losing. Loss means being without something previously possessed. The chance of loss refers to afraction or the relative frequency of loss. The chance of loss in insurance sense is the probability of loss.

For example, assume there are 10,000 factories in the insurance pool which may be affected due toearthquake and on the basis of past experience, 5 have been affected, then the probability of loss is 0.0005.

The whole game of insurance business is based on the probability of loss. If the insurer estimates correctly, he wins else loses or is forced to close the business. From the insurer's perspective, it is the probability of loss that accentuate the need for insurances. The probabilities of losses may be ex-post or ex-ante. In practice, the ex-ante probabilities are widely used for undertaking risk in insurance business. The chance or probabilities of loss estimation requires accounting for causes of losses popularly characterised as perils and hazards.

#### Perils

A peril refers to the cause of loss or the contingency that may cause a loss.8 In literary sense, it means the serious and immediate danger. Perils refer to the immediate causes of loss. Perils may be general or specific, e.g., fire may affect assets like building, automobile, machinery, equipment and also, humans. Collusion maycause damage to the automobile resulting in a financial loss.

#### Hazards

Hazards are the conditions that increase the severity of loss or the conditions affecting perils. These are the conditions that create or increase the severity of losses. Economic slowdown is a peril that may cause a loss to the business, but it is also a hazard that may cause a heart attack or mental shock to the proprietor of the business. Hazards can be classified as follows:

(1) **Physical Hazards** — Property Conditions — consists of those physical properties that increase the chance of loss from the various perils. For example, stocking crackers in a packed commercial complex increases the peril of fire.

(2) **Intangible Hazards** — Attitudes and Culture — Intangible hazards are more or less psychological in nature. These can be further classified as follows:

(a) **Moral Hazard** — Fraud — These refer to the increase in the possibility or severity of loss emanating from the intention to deceive or cheat. For example, putting fire to a factory running in losses. With an intention to make benefit out of exaggerated claims, deliberately indulging into automobile collusion or damaging it or tendency on part of the doctor to go for unnecessary checks when

they are not required, since the loss will be reimbursed by the insurance company.

(b) **Morale Hazard** — Indifference — It is the attitude of indifference to take care of the property on the premise that the loss will be indemnified by the insurance company. So, it is the carelessness or indifference to a loss because of the existence of insurance contract. For example, smoking in an oil refinery, careless driving, etc.

(c) **Societal Hazards** — Legal and Cultural — These refer to the increase in the frequency and severity of loss arising from legal doctrines or societal customs and structure. For example, the construction or the possibility of demolition of buildings in unauthorised colonies.

#### **Types of Risks**

#### **Financial and Non-financial Risks**

Financial risk involves the simultaneous existence of three important elements in a risky situation – (a) that someone is adversely affected by the happening of an event, (b) the assets or income is likely to be exposed to a financial loss from the occurrence of the event and (c) the peril can cause the loss. For example, loss occurred in case of damage of property or theft of property or loss of business. This is financial risk sincerisk resultant can be measured in financial terms. When the possibility of a financial loss does not exist, the situation can be referred to as non-financial in nature. Financial risks are more particular in nature. For example, risk in the selection of career, risk in the choice of course of study, etc. They may or may not have any financial implications. These types of risk are difficult to measure. As far as insurance is concerned, risk is involved with an element of financial loss.

#### **Individual and Group Risks**

A risk is said to be a group risk or fundamental risk if it affects the economy or its participants on a macro basis. These are impersonal in origin and consequence. They affect most of the social segments or the entire population. These risk factors may be socio-economic or political or natural calamities, e.g., earthquakes, floods, wars, unemployment or situations like 11th September attack on US, etc.

Individual or particular risks are confined to individual identities or small groups. Thefts, robbery, fire, etc. are risks that are particular in nature. Some of these are insurable. The methods of handling fundamental and particular risks differ by their very nature, e.g., social insurance programmes may be undertaken by the government to handle fundamental risks. Similarly, fire insurance policy may be bought by an individual to prevent against the adverse consequences of fire.

#### **Pure and Speculative Risks**

Pure risk situations are those where there is a possibility of loss or no loss. There is no gain to the individual or the organization. For example, a car can meet with an accident or it may not meet with an accident. If an insurance policy is bought for the purpose, then if accident does not occur, there is no gain to the insured. Contrarily, if the accident occurs, the insurance company will indemnify the loss.

Speculative risks are those where there is possibility of gain as well as loss. The element of gain is inherentor structured in such a situation. For example — if you invest in a stock market, you may either gain or lose on stocks.

The distinguishing characteristics of the pure and speculative risks are:

(a) Pure risks are generally insurable while the speculative ones are not.

(b) The conceptual framework of the risk pooling can be applied to pure risks, while in most of the cases of speculative risks it is not possible. However, there may be some situation where the law of mathematical expectation might be useful.

(c) Speculative risk carry some inherent advantages to the economy or the society at large while purerisks like uninsured catastrophes may be highly damaging.

#### **Static and Dynamic Risks**

Dynamic risks are those resulting from the changes in the economy or the environment. For example economic variables like inflation, income level, price level, technology changes etc. are dynamic risks. Since the dynamic risk emanates from the economic environment, these are very difficult to anticipate and quantify. Dynamic risk involves losses mainly concerned with financial losses. These risks affect the public and society. These risks are the best indicators of progress of the society, because they are the results of adjustment in misallocation of resources.

On the other hand, static risks are more or less predictable and are not affected by the economic conditions. Static risk involves losses resulting from the destruction of an asset or changes in its possession as a result of dishonesty or human failure. Such financial losses arise, even if there are no changes in the economic environment. These losses are not useful for the society. These arise with a degree of regularity over time andas a result, are generally predictable. Example for static risk includes possibility of loss in a business: unemployment after undergoing a professional qualification, loss due to act of others, etc.

Dynamic Risks	Static Risks
Losses are not easily predictable	Losses can be predicted
These risk result from the changes in economic environment	There occur even if there is no change in economic environment
These risks are not covered by insurance	These risk can be covered by insurance
These risks benefit the society	These risks don't benefit the society

Dynamic vs. Static Risks

#### Quantifiable and Non-quantifiable Risks

The risk which can be measured like financial risks are known to be quantifiable while the situations which may result in repercussions like tension or loss of peace are called as non-quantifiable.

#### **Risk for Financial Institutions**

In line with the BASEL accord, the risks for banks, financial institutions, etc. can classified as follows:10

**Credit Risk:** The risk that a customer, counter-party, or supplier will fail to meet its obligations. It includes everything from a borrower default to supplier missing deadlines because of credit problems. Credit risk is the change in value of a debt due to changes in the perceived ability of counter parties to meet their contractual obligations (or credit rating). Also known as default risk or counter-party risk, credit risk is faced by lending institutions like banks, investors in debt instruments of corporate houses, and by parties involved in contractual agreements like forward contracts. There are independent agencies that assess the credit risk in the form of credit ratings.

Credit rating is an opinion (of the credit rating agency) on the ability of the organization to perform its contractual obligations (pay the principle and/or interest of the loan) on a timely basis. Each level of rating indicates a probability of default. International credit rating agencies (like Moody's, Fitch, and S&P) use quantitative models along with their experience to predict the credit ratings. Credit scoring models of banks and lending institutions use stock prices (if available), financial performance and sector-specific data, and macroeconomic forecasts to predict the credit rating.

Credit risk can be further segregated as:

- (a) Direct Credit Risk due to counter-party default on a direct, unilateral extension of credit
- (b) Trading credit risk counter-party default on a bilateral obligation (repos)
- (c) Contingent credit risk counter-party default on a possible future extension of credit
- (d) Correlated credit risk magnified effect
- (e) Settlement risk failure of the settlement conditions
- (f) Sovereign risk due to government policies (exchange controls)

**Market Risk:** The risk that process will move in a way that has negative consequences for a company. Market Risk is the change in value of assets due to changes in the underlying economic factors such as interest rates, foreign exchange rates, macroeconomic variables, stock prices, and commodity prices. All economic entities that own assets face market risk. For example, bills receivable of software

exporters that are denominated in foreign currencies are exposed to exchange rate fluctuations; while value of bonds/ government securities owned by investors depend on prevailing interest rates. Organizations with huge exposures, either have a dedicated treasury department, or outsource market risk management to banks.

Modelling market risk requires forecasting the changes in the economic factors, and assesses their impact on the asset value. Almost popular measure for expressing market risk is Value-at-Risk, which is 'the maximum loss' from an unfavourable event, within a given level of confidence, for a given holding period. Various financial instruments like options, futures, forwards, swaps, etc. can be used effectively to hedge the market risk. Availability of huge data on various markets has facilitated the development of many sophisticated models.

These risks can be broken into following components:

- (a) Directional Risk deviations due to adverse movement in the direction
- of the underlyingreference asset.
- (b) Curve Risk deviation due to adverse change in the maturity structure of a reference asset.
- (c) Volatility risk unexpected volatility of financial variable.
- (d) Time decay risk risk due to passage of time.
- (e) Spread risk adverse change in two reference assets that are unrelated.
- (f) Basis risk adverse change in two reference assets that are related
- (g) Correlation risk risk due to adverse correlations.

**Operational**: The risk that people, processes, or systems will fail or that an external event will negatively affect the company. Practically speaking, all organizations face operational risk. For a financial institution/ bank, operational risk can be defined as the possibility of loss due to mistakes made in carrying out transactions such as settlement failures, failures to meet regulatory requirements, and untimely collections. No concrete model of managing credit risk is available till today. Still lot of research is being done in this direction.

**Other**: Extensions of the above categories, viz., business risk is that future operating results may not meet expectations; organisational risk arises from a badly designed organisational structure or lack of sufficient human resources.

#### **Classifying Pure Risks**

Since pure risks are generally insurable, the discussion on risk in further chapters of the book is skewed towards pure risks only. On the presumption that insurable pure risks being static can be classified asfollows:



#### **Personal Risks**

Personal risks are risks that directly affect an individual. They involve the possibility of the complete loss or reduction of earned income. There are four major personal risks.

**Risk of Premature Death:** Premature death is defined as the death of the household head with unfulfilled financial obligations. If the surviving family members receive an insufficient amount of replacement income from other sources or have insufficient financial assets to replace the lost income, they may be financially insecure. Premature death can cause financial problems only if the deceased has dependents to support or

does with unsatisfied financial obligations. Thus, the death of a child aged 5 is not premature in the economicsense.

**Risk of Insufficient Income during Retirement:** It refers to the risk of not having sufficient income at the age of retirement or the age becoming so that there is a possibility that individual may not be able to earn the livelihood. When one retires, he loses his earned income. Unless he has sufficient financial assets from which to draw or has access to other sources of retirement income such as social security or a private pension, he will be exposed to financial insecurity during retirement.

**Risk of Poor Health:** It refers to the risk of poor health or disability of a person to earn the means of survival. For example, losing the legs due to accident, heart surgery that is costly. Unless the person has adequate health insurance, private savings or other sources of income to meet these losses, he will be financially insecure. The loss of insecurity is significant if the disability is severe. In case of long-term disability, things will become worst and someone must take care of the disabled person. The loss of earned income can be financially painful.

**Risk of Unemployment:** The risk of unemployment is another major threat to financial security. Unemployment can result from business cycle downswings, technological and structural changes in the economy, seasonal factors, etc. Employers are increasingly hiring temporary or part-time workers to reduce labor costs. Being temporary employees, workers lose their employee benefits. Unless there is adequate replacement income or past savings on which to draw, the workers (unemployed, part- time and temporary) will be financially insecure. By passage of time, past savings and unemployment benefits may be exhausted.

#### **Property Risks**

It refers to the risk of having property damaged or lost because of fire, windstorm, earthquake and numerous other causes. There are two major types of loss associated with the destruction or theft of property.

Direct Loss: A direct loss is defined as a financial loss that results from the physical damage destruction, or theft of the property. For example, physical damage to a

factory due to fire is known as direct loss.

**Indirect or Consequential Loss:** An indirect loss is a financial loss that results indirectly from the occurrence of a direct physical damage or theft loss. For example, in factory, there may be apparent financial losses resulting from not working for several months while the factory was rebuilt and also extra expenses termed as indirect loss. Regardless of the cost, business may lose its customers. In this case, it is necessary to setup a temporary operation at some alternative location and extra expenses would occur. These are the indirect expenses resulting from the damage of the factory.

#### **Liability Risks**

These are the risks arising out of the intentional or unintentional injury to the persons or damages to their properties through negligence or carelessness. Liability risks generally arise from the law. For example, the liability of an employer under the workmen's compensation law or other labor laws in India.

In addition to the above categories, risks may also arise due to the failure of others. For example, the financial loss arising from the non-performance or standard performance in an engineering or construction contract.

#### **Risk Perception and Misconceptions**

Different people respond to seemingly similar risky situations in very different ways. It is seen that empirical evidence concerning individual risk response is often ignored in the risk analysis process. Also, experience, subjectivity and the way risk is framed plays a major role in decision-making. Risk perception has a crucial influence on risk- taking behaviour. The perceived importance attached to decisions influences team behaviour and the consequent implementation methods.

#### **Psychological Risk Dimensions**

#### (a) People use heuristics to evaluate information –

- That may lead to inaccurate judgments in some situations
- become cognitive biases.
- (b) Representativeness Usually employed when people are asked to

judge the probability that anobject or event belongs to a class or processes by its similarity implying – insensitivity to prior probability, sample size, misconception of chance, insensitivity to predictability, illusion of validityand misconception of regression.

(c) Availability heuristic

– Events that can be more easily brought to mind or imagined are judged to be more likelythan events that could not easily be imagined:

- biases due to retrievability of instances

- biases due to the effectiveness of research set

- biases of imaginability

- illusory correlation

(d) Anchoring and adjustment heuristic – People will often start with one piece of known information and then adjust it to create an estimate of an unknown risk – but the adjustment will usually not be big enough:

- insufficient adjustment

- biases in the evaluation of conjunctive and disjunctive event

- anchoring in the assessment of subjective probability distributions

(e) Cognitive Psychology – Factors that are common and generic are more expressed.

(f) Psychometric Paradigm – People perceive risks to

be high in general. Also, perceived risk is quantifiable and predictable.

Broad domain of risk characteristics is represented by three high order factors:

- the degree to which a risk is understood
- the degree to which it evokes a feeling of dread and
- the number of people exposed to the risk.
- Misconceptions of Risk
- Risk can be eliminated.
- Risk management is always better.
- Risk set is finite.
- Risk management is implied/automatic.
- Top valued (rated) organizations have best risk management practices.

## **Risk importance**

# Chapter 2. Impact of Risk on Organizations

Following the events in the world financial system during 2008, all organizations are taking a greater interest in risk and risk management. It is increasingly understood that the explicit management of risks brings benefits. By taking a proactive approach to risk and risk management, organizations will be able to achieve the following three areas of improvement:

• Operations will become more efficient because events that can cause disruption will be identified in advance and actions taken to reduce the likelihood of these events occur- ring, reducing the damage caused by these events and containing the cost of the events that can cause disruption to normal efficient production operations.

• Processes will be more effective, because consideration will have been given to selection of the processes and the risks involved in the alternatives that may be available. Also, process changes that are delivered by way of projects will be more effectively and reliably delivered.

• Strategy will be more efficacious in that the risks associated with different strategic options will be fully analysed and better strategic decisions will be reached. Efficacious refers to the fact that the strategy that will be developed will be fully capable of deliver- ing the required outcomes.

It is no longer acceptable for organizations to find themselves in a position whereby unexpected events cause financial loss, disruption to normal operations, damage to reputation and loss of market presence. Stakeholders now expect that organizations will take full account of the risks that may cause disruption within operations, late delivery of projects or failure to deliver strategy.

The exposure presented by an individual risk can be defined in terms of the likelihood of the risk materialising and the impact of the risk when it does

materialise. As risk exposure increases, then likely impact will also increase. Throughout this book, the term impact is used in preference to the alternative word, consequences. This is because the term impact is preferred in business continuity planning evaluations.

#### Impact of hazard risks

Hazard risks undermine objectives, and the level of impact of such risks is a measure of their significance. Risk management has its longest history and earliest origins in the management of hazard risks. Hazard risk management is closely related to the management of insurable risks. Remember that a hazard (or pure) risk can only have a negative outcome.

Hazard risk management is concerned with issues such as health and safety at work, fire prevention, damage to property and the consequences of defective products. Hazard risks can cause disruption to normal operations, as well as resulting in increased costs and poor publicity associated with disruptive events. Hazard risks are related to business dependencies, including IT and other supporting services. There is increasing dependence on the IT infrastructure of most organizations and IT systems can be disrupted by computer breakdown or fire in server rooms, as well as virus infection and deliberate hacking or computer attacks.

Theft and fraud can also be significant hazard risks for many organizations. This is especially true for organizations handling cash or managing a significant number of financial transactions. Techniques relevant to the avoidance of theft and fraud include adequate security procedures, segregation of financial duties, and authorisation and delegation procedures, as well as the vetting of staff prior to employment.

#### Attachment of risks

Although most standard definitions of risk referred to risks as being attached to corporate objectives, Figure

2.1 provides an illustration of the options for the attachment of risks. Risks are shown in the diagram as being capable of impacting the key dependencies that

deliver the core processes of the organization. Corporate objectives and stakeholder expectations help define the core processes of the organization. These core processes are key components of the business model and can relate to operations, projects and corporatestrategy.

The intention of Figure 2.1 is to demonstrate that significant risks can be attached to features of the organization other than corporate objectives. Significant risks can be identified by considering the key dependencies of the organization, the corporate objectives and/or the stake- holder expectations, as well asby analysis of the core processes of the organization.

In the build-up to the recent financial crisis, banks and other financial institutions established operational and strategic objectives. By analysing these objectives and identifying the risks that could prevent the achievement of them, risk management made a contribution to the achievement of the high-risk objectives that ultimately led to the failure of the organizations. This example illustrates that attaching risks to attributes other than objectives is not only possible but may well have been desirable in these circumstances.



Figure 2.1 Attachment of risks

It is clearly the case that risks are greater in circumstances of change. Therefore, linking risks to change objectives is not unreasonable, but the analysis of each objective in turn may not lead to robust risk recognition/identification. In any case, business objectives are usually stated at too high a level for the successful attachment of risks.

To be useful to the organization, the corporate objectives should be presented as a full state- ment of the short, medium and long-term aims of the organization. Internal, annual, change objectives are usually inadequate, because they may fail to fully identify the operational (or efficiency), change (or competition) and strategic (or leadership) requirements of the organisation.

The most important disadvantage associated with the 'objectives-driven' approach to risk and risk management is the danger of considering risks out of the context that gave rise to them. Risks that are analysed in a way that is separated from the situation that led to them will not be capable of rigorous and informed evaluation. It can be argued that a more robust analysis can be achieved when a 'dependenciesdriven' approach to risk management is adopted.

It remains the case that many organizations continue to use an analysis of corporate objectives as a means of identifying risks, because some benefits do arise from this approach. For example, using this 'objectives- driven' approach facilitates the analysis of risks in relation to the positive and uncertain aspects of the events that may occur, as well as facilitating the analysis of the negative aspects.

If the decision is taken to attach risks to the objectives of the organization, then it is important that these objectives have been fully and completely developed. Not only do the objectives need to be challenged to ensure that they are full and complete, but the assumptions that underpin the objectives should also receive careful and critical attention.

Core processes will be discussed later in this book and may be considered as the high level processes that drive the organization. In the example of a sports club, one of the key processes is the operational process 'delivering successful results on the pitch'. Risks may be attached to this core process, as well as being attached to objectives and/or key dependencies.

Although risks can be attached to other features of the organization, the standard approach is to attach risks to corporate objectives. One of the standard definitions of risk is that it is some- thing that can impact (undermine, enhance or cause doubt) the achievement of corporate objectives. This is a useful definition, but it does not provide the only means of identifying significant risks.

#### **Risk and reward**

Another feature of risk and risk management is that many risks are taken by an organization in order to achieve a reward. Figure 2.2 illustrates the relationship between the level of risk and the anticipated size of reward. A business will launch a new product because it believes that greater profit is available from the successful marketing of the new product. In launching a new product, the organization will put resources at risk because it has decided that a certain amount of risk taking is appropriate. The value put at risk represents the risk appetite of the organization with respect to the activity that it is undertaking.

When an organization puts value at risk in this way, it should do so with the full knowledge of the risk exposure and it should be satisfied that the risk exposure is within the appetite of the organization. Even more important, it should ensure that it has sufficient resources to cover the risk exposure. In other words, the risk exposure should be quantified, the appetite to take that level of risk should be confirmed and the capacity of the organization to withstand any foreseeable adverse consequences should be clearly established.

Not all business activities will offer the same return for risk taken. Start-up operations are usually high risk and the initial expected return may be low. Figure 2.2 demonstrates the prob- able risk-return development for a new organization or a new product. The activity will commence in the bottom right-hand corner as a start-up operation, which is high risk and low return.

As the business develops, it is likely to move to a higher return for the same level of risk. This is the growth phase for the business or product. As the investment matures, the reward may remain high, but the risks should reduce. Eventually, an organization will become fully mature and move towards the low-risk and lowreturn quadrant. The normal expectation in very mature markets is that the organization or product will be in decline.



Figure 2.2 Risk and reward

The particular risks that the organization faces will need to be identified by management or by the organization. Appropriate risk management techniques will then need to be applied to the risks that havebeen identified. The nature of these risk responses and the nature of their impact will be considered in a later chapter.

The above discussion about risk and reward applies to opportunity risks. However, it must always be the casethat risk management effort produces rewards. In the case of hazard risks, it is likely that the reward for increased risk management effort will be fewer disruptive events. In the case of project risks, the reward for increased risk management effort will be that the project is more likely to be delivered on time, withinbudget and to specification/quality. For opportunity risks, the risk–reward analysis should result in fewer unsuccessful new products and a higher level of profit or (at worst) a lower level of loss for all new activities or new products.

#### **Risk and uncertainty**

Risk is sometimes defined as uncertainty of outcomes. This is a somewhat technical, but nev- ertheless useful definition and it is particularly applicable to the management of control risks. Control risks are the most difficult to identify and define, but are often associated with projects. The overall intention of a project is to deliver the desired outcomes on time, within budget and to specification.

For example, when a building is being constructed, the nature of the ground conditions may not always be known in detail. As the construction work proceeds, more information will be available about the nature of the ground conditions. This information may be positive news that the ground is stronger than expected and less foundation work is required. Alternatively, it may be discovered that the ground is contaminated or the ground is weaker than expected or that other potentially adverse circumstances exist, such as archaeological remains being discovered.

Given this uncertainty, these risks should be considered to be control risks and the overall management of the project should take account of the uncertainty associated with these dif- ferent types of risk. It would be unrealistic for the project manager to assume that only adverse aspects of the ground conditions will be discovered. Likewise, it would be unwise for the project manager to assume that conditions will be betterthan he has been advised, just because he wants that to be the case.

Because control risks cause uncertainty, it may be considered that an organization will have an aversion to these risks. Perhaps, the real aversion is to the potential variability in outcomes. A certain level of deviation from the project plan can be tolerated, but it must not be too great. Tolerance in relation to control risks can be considered to have the same meaning as in the manufacture of engineering components, where the components must be of a certain size, within acceptable tolerance limits.

#### 2.5 Attitudes to risk

Different organizations will have different attitudes to risk. Some organizations may be con- sidered to be risk averse, whilst other organizations will be risk aggressive. To some extent, the attitude of the organization to risk will depend on the sector and the nature and maturity of the marketplace within which it operates, as well as the attitude of the individual board members.

Risks cannot be considered outside the context that gave rise to the risks. It may appear that an organization is being risk aggressive, when in fact, the board has decided that there is an opportunity that should not be missed. However, the fact that the opportunity is high risk may not have been fully considered.

One of the major contributions from successful risk management is to ensure that strategic decisions that appear to be high risk are actually taken with all of the information available. Improvement in the robustness of decision-making processes is one of the key benefits of risk management.

Other key factors that will determine the attitude of the organization to risk include the stage in the maturity cycle, as shown in Figure 2.2. For an organization that is in the start-up phase, a more aggressive attitude to risk is required than for an organization that is enjoying growth or one that is a mature organization in a mature marketplace. Where an organization is operating in a mature marketplace and is suffering from decline, the attitude to risk will be much more risk averse.

It is because the attitude to risk has to be different when an organization is a startup opera- tion compared with a mature organization, that it is often said that certain high-profile businessmen are very good at entrepreneurial start-up, but are not as successful in running mature businesses. Different attitudes to risk are required at different parts of the business maturity cycle.

## Chapter 3 - Types of Risk

#### Timescale of risk impact

Risks can be classified in many ways. Hazard risks can be divided into many types of risks, including risks toproperty, risks to people and risks to the continuity of the business. There are a range of formal risk classification systems and these will be considered in a later part of this book. Although it should not be considered to be a formal risk classification system, this part considers the value of classifying risks according to the timeframe for the impact of the risk.

The classification of risks as long, medium and short-term impact is a very useful means of analysing the risk exposure of an organization. These risks will be related to the strategy, tactics and operations of the organization, respectively. In this context, risks may be considered as related to events, changes in circumstances, actions or decisions.

In general terms, long-term risks will impact several years, perhaps up to five years, after the event occurs or the decision is taken. Long-term risks therefore relate to strategic decisions. When a decision is taken to launch a new product, the impact of that decision (and the success of the product itself) may not be fully apparent for some time.

Medium-term risks have their impact some time after the event occurs or the decision is taken, and typically this will be about a year later. Medium-term risks are often associated with projects or programmes of work. For example, if a new computer software system is to be installed, then the choice of computer system is a long-term or strategic decision. However, decisions regarding the project to implement the new software willbe medium-term decisions with medium-term risk attached.

Short-term risks have their impact immediately after the event occurs. Accidents at work, traffic accidents, fire and theft are all short-term risks that have an immediate impact and immediate consequences as soon as the event has occurred. These short-term risks cause immediate disruption to normal efficient operations and are probably the easiest types of risks to identify and manage.

Insurable risks are quite often short-term risks, although the exact timing and magnitude/ impact of the insured events is uncertain. In other words, insurance is designed to provide protection against risks that have immediate consequences. In the case of insurable risks, the nature and consequences of the event may be understood, but the timing of the event is unpredictable . In fact, whether the event will occur at all is not known at the time the insurance policy is taken out.

By way of example, consider the operation of a new computer software system in more detail. The organization will install the new software in anticipation of gaining efficiency and greater functionality. The decision to install new software and the choice of the software involves opportunity risks. The installation will require a project, and certain risks will be involved in the project. The risks associated with the project are control risks. After the new software has been installed, it will be exposed to hazard risks. It may not deliver all of the functionality required and the software may be exposed to various risks and virus infection. These are the hazard risks associated with this new software system.

#### Hazard, control and opportunity risks

We have already seen in Chapter 1 that risks can be divided into three categories: Definitions of these three types of risk are also given in Appendix A. They are:

- hazard risks;
- control risks;
- opportunity risks.

A common language of risk is required throughout the organization if the contribution of risk management is to be maximised. The use of a common language will also enable the organization to develop an agreed perception of risk. Part of developing this common language and perception of risk is to agree a risk classification system or series of such systems.

For example, consider people reviewing their financial position and the risks they currently face regarding finances. It may be that the key financial dependencies relate to achieving adequate income and managing expenditure. The review should include an analysis of the risks to job security and pension arrangements, as well as property ownership and other investments. This part of the analysis will provide information on the risks to income and the nature of those risks (opportunity risks).

Regarding expenditure, the review will consider spending pattern to determine whether cost cutting is necessary (hazard risks). It will also consider leisure time activities, including holiday arrangements and hobbies, and there will be some uncertainties regarding expenditure and the costs of these activities (control risks).

Hazard risks are the risks that can only inhibit achievement of the corporate mission. Typically, these are insurable type risks or perils, and will include fire, storm, flood, injury and so on. The discipline of risk management has strong origins in the management and control of hazard risks. Normal efficient operations may be disrupted by loss, damage, breakdown, theft and other threats associated with a wide range of dependencies, as shown in Table 3.1, and these may include (for example):

- people;
- premises;
- assets;
- suppliers;
- information technology (IT);
- communications.

Control risks are risks that cause doubt about the ability to achieve the mission of the organisation. Internal financial control protocols are a good example of a response to a control risk. If the control protocols are removed, there is no way of being certain about what will happen. Control risks are the most difficult type of risk to describe, but later Parts of this book will assist with understanding.

Control risks are associated with uncertainty, and examples include the potential for legal non-compliance and losses caused by fraud. They are usually dependent on the successful management of people and successful implementation of control protocols. Although most organizations ensure that control risks are carefully managed, they may, nevertheless, remain potentially significant.

Opportunity risks are the risks that are (usually) deliberately sought by the organization. These risks arise because the organization is seeking to enhance the

achievement of the mission, although they might inhibit the organization if the outcome is adverse. This is the most important type of risk for the future long-term success of any organization.

Many organizations are willing to invest in high-risk business strategies in anticipation of a high profit or return. These organizations may be considered to have a large appetite for opportunity investment. Often, the same organization will have the opposite approach to hazard risks and have a small hazard tolerance. This may be appropriate, because the attitude of the organization may be that it does not want hazard-related risks consuming corporate resources, when it is putting so much value at risk investing in opportunities.

## Hazard tolerance

As discussed earlier in this part, organizations face exposure to a wide range of risks. These risks will be hazard risks, control risks and opportunity risks. Organizations need to tolerate a hazard risk exposure, accept exposure to control risks and invest in opportunity risks.

In the case of health and safety risks, it is generally accepted that organizations should be intolerant of these risks and should take all appropriate actions to eliminate them. In practice, this is not possible and organizations will manage safety risks to the lowest level that is cost-effective and in compliance with the law.

For example, an automatic braking system fitted to trains to stop them passing through red lights is technically feasible. However, this may represent an unreasonable investment for the train operating company. The consequences of trains going through red lights may be regarded as the risk exposure orhazard tolerance of the organization but the cost of introducing the automatic braking system may be considered to be prohibitively high.

Category	Examples of disruption
People	Lack of people skills and / or resources Unexpected absence of key personnel Ill-health, accident or injury to people
Premises	Inadequate or insufficient premises Denial of access to premises Damage to or contamination of premises
Assets	Accidental damage to physical assets Breakdown of plant or equipment Theft or loss of physical assets
Suppliers	Disruption caused by failure of supplier Delivery of defective goods or components Failure of outsourced services and facilities
Information technology (IT)	Failure of IT hardware systems Disruption by hacker or computer virus Inefficient operation of computer software
Communications	Inadequate management of information Failure of internal or external communications Transport failure or disruption

**Table 3.1**Categories of disruption

A less emotive example is related to theft. Most organizations will suffer a low level of petty theft and this may be tolerable. For example, businesses based in an office environment will suffer some theft of stationery, including paper, envelopes and pens. The cost of eliminating this petty theft may be very large and so it becomes cost-effective for the organization to accept that these losses will occur. The approach to theft in shops may be very different in different retail sector.

#### Management of hazard risks

The range of hazard risks that can affect an organization needs to be identified by the organisation. Hazard risks can result in unplanned disruption for the organization. Disruptive events cause inefficiency and are to be avoided, unless they are part of, for example, planned maintenance or testing of emergency procedures. The desired state in relation to hazard risk management is that there should be no unplanned disruption or inefficiency from any of the reasons shown in Table 3.1.

Table 3.1 provides a list of the events that can cause unplanned disruption or inefficiency. These events are divided into several categories, such as people, property, assets, suppliers, information technology and communications. For each category of hazard risks, the organization needs to evaluate the types of incidents

that could occur, the sources of those incidents and their likely impact on normal efficient operations.

Management of hazard risks involves analysis and management of three aspects of the hazard risk. This will be discussed in more detail in a later Part of this book. In summary, the organization should look at the necessary actions to prevent the loss occurring, limit the damage that the event could cause and contain the cost of recovering from the event.

Hazard management is traditionally the approach adopted by the insurance world. Organizations will have a tolerance of hazard risks. The approach should be based on reducing the likelihood and magnitude/impact of hazard losses. Insurance represents the mechanism for limiting the financial cost of losses.

When an organization considers the level of insurance that it will purchase, the hazard tolerance of the organization needs to be fully analysed. Organizations may be willing to accept a certain cost of motor accidents as a financial cost that will be funded from the day-to-day profit and loss of the organization. This will only be tolerable up to a certain level and the organization will need to determine what level is acceptable. Insurance should then be pur- chased to cover losses that are likely to exceed that level.

#### Uncertainty acceptance

When undertaking projects and implementing change, an organization has to accept a level of uncertainty. Uncertainty or control risks are an inevitable part of undertaking a project. A contingency fund to allow for the unexpected will need to be part of a project budget, as well as contingent time built into project schedules. When looking to develop appropriate responses to control risks, the organization must make necessary resources available to identify the controls, implement the controls and respond to the consequences of any control risk materialising.

The nature of control risks and the appropriate responses depend on the level of uncertainty and the nature of the risk. Uncertainty represents a deviation from the required or expected outcome. When an organization is undertaking a project, such as a process enhancement, the project has to be delivered on time, within budget and to specification. Also, the enhancement has to deliver the benefits that were required. Deviation from the anticipated benefits of a project represents uncertainties that can only be accepted within a certain range.

Control management is the basis of the approach to risk management adopted by internal auditors and accountants. The UK Turnbull Report will be mentioned later in this book, and it concentrates on internal control with little reference to risk assessment. Control management is concerned with reducing the uncertainty associated with significant risks and reducing the variability of outcomes.

There are dangers if the organization becomes too concerned with control management. The organization should not become obsessed with control risks, because it is sometimes suggested that over-focus on internal control and control management suppresses the entrepreneurial effort.

#### **Opportunity investment**

Some risks are taken deliberately by organizations in order to achieve their mission. These risks are often marketplace or commercial risks that have been taken in the expectation of achieving a positive return. These opportunity risks can otherwise be referred to as commercial, speculative or business risks. Opportunity risks are the type of risk with potential to enhance (although they can also inhibit) the achievement of the mission of the organization. These risks are the ones associated with taking advantage of business opportunities.

All organizations have some appetite for seizing opportunities and are willing to invest in them. There will always be a desire for the organization to have efficient operations, effective processes and efficacious strategy. Opportunity risks are normally associated with the development of new or amended strategies, although opportunities can also arise from enhancing the efficiency of operations and implementing change initiatives.

Every organization will need to decide what appetite it has for seizing new opportunities and the level of investment that is appropriate. For example, an

organization may realise that there is a requirement in the market for a new product that its expertise would allow it to develop and supply. However, if the organization does not have the resources to develop the new product, then it may be unable to implement that strategy and it would be unwise for the organization to embark on such a potentially high-risk course of action.

It will be for the management of the company to decide whether they have an appetite for seizing the perceived opportunity. Just because the organization has that appetite, it does not mean that it is the correct thing to do. The board of the company should therefore be aware of the fact that, although they may have an appetite for seizing the opportunity, the organization might not have the risk capacity to support that courseof action.

Opportunity management is the approach that seeks to maximise the benefits of taking entrepreneurial risks. Organizations will have an appetite for investing in opportunity risks. There is a clear link between opportunity management and strategic planning. The desire is to maximise the likelihood of a significant positive outcome from investments in business opportunities.

The example below related to personal lifestyle decisions considers risk factors by classifying them as controllable and uncontrollable. Although the example relates to personal health risk factors, consideration of whether business risks are within the control of the organization or not is an important component of successful business risk management.

# Chapter 4 Development of risk management

#### Origins of risk management

Risk management has a variety of origins and is practised by a wide range of professionals. One of the early developments in risk management was in the United States out of the insurance management function. The practice of risk management became more widespread and better co-ordinated because the cost of insurance in the 1950s had become prohibitive and the extent of coverage limited. Organizations realised that purchasing insurance was insufficient, if there was also inadequate attention to the protection of property and people. Insurance buyers therefore became concerned with the quality of property protection, the standards of health and safety, product liability issues and other risk control concerns.

This combined approach to risk financing and risk control developed in Europe during the 1970s and the concept of total cost of risk became important. As this approach became established, it also became obvious that there were many risks facing organizations that were not insurable. The tools and techniques of risk management were then applied to other disciplines , as discussed later in this chapter.

The maturity of the risk management discipline is now such that the links with insurance are much less strong. Insurance is now seen as one of the risk control techniques, but it is only applicable to a portion of hazard risks. Risks related to finance, commercial, marketplace and reputational issues are recognized as being hugely important, but outside the historical scope of insurance. The range of different approaches to risk management is illustrated by the definitions of risk management as set out in Table 4.1.

Organization	Definition of risk management
ISO Guide 73 BS 31100	Coordinated activities to direct and control an organization with regard to risk
Institute of Risk Management (IRM)	Process which aims to help organizations understand, evaluate and take action on all their risks with a view to increasing the probability of success and reducing the likelihood of failure
HM Treasury	All the processes involved in identifying, assessing and judging risks, assigning ownership, taking actions to mitigate or anticipate them, and monitoring and reviewing progress
London School of Economics	Selection of those risks a business should take and those which should be avoided or mitigated, followed by action to avoid or reduce risk
Business Continuity Institute	Culture, processes and structures that are put in place to effectively manage potential opportunities and adverse effects

Table 4.1	Definitions	of risk	management
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The increasing importance of risk management can be explained by the list of issues set out in Table 4.2. Many of these issues demonstrate that the application of risk management has moved a long way from the origins in the insurance world. Nevertheless, the insurance origins of risk management remain vitally important and are still the part of the approach to hazard management.

This chapter considers the nature of risk management and the established stages that build into the risk management process. Historically, the term risk management has been used to describe an approach that was applied only to hazard risks. The discipline is now developing in a way that will enable risk management to make a contribution to the improved management of control risks and opportunity risks.

Risk management has well-established stages that make up the risk management process, as described in Table 4.3. These stages build into valuable risk management activities, each of which makes an important contribution. There are many ways of representing the risk management process, and each of the standards mentioned later in this part provides a slightly different description.

Figure 4.1 provides a simple diagrammatic representation of the risk management

process. This basic explanation of the risk management process is referred to as the 7Rs and 4Ts of hazard risk management. The activities associated with risk management are as follows:

- recognition of risks;
- ranking of risks;
- responding to significant risks;
- resourcing controls;
- reaction (and event) planning;
- reporting of risk performance;
- reviewing the risk management system.

Risk management can improve the management of the core processes of an organization by ensuring that key dependencies are analysed, monitored and reviewed. Risk management tools and techniques will assist with the management of the hazard risks, control risks and opportunity risks that could impact these key dependencies.

#### Insurance origins of risk management

The corporate risk management role in the United States during the 1950s became an extension of insurance purchasing decisions. During the 1960s, contingency planning became more important to organizations. There was also an emphasis beyond risk financing to loss prevention and safety management. During the 1970s, self-insurance and risk retention practices developed within organizations. Captive insurance companies also started to develop. Contingency plans then developed into business continuity planning and disaster recovery plans.

At the same time during the 1960s and 1970s, there were considerable developments in the risk management approach adopted by occupational health and safety practitioners. During the 1980s, the application of risk management techniques to project management developed substantially. Financial institutions continued to develop the application of risk management tools and techniques to market and credit risk during the 1980s. During the 1990s, the financial institutions further broadened their risk management initiatives to include structured consideration of operational risks.

Also, during the 1980s, treasury departments began to develop the financial approach to risk management. There was recognition by finance directors that

insurance risk management and financial risk management policies should be better co-ordinated. During the 1990s, risk financing products emerged that combined insurance with derivatives. At the same time, corporate governance and listing requirements encouraged directors to place greater emphasis on enterprise risk management (ERM) and the first appointment of a chief risk officer (CRO) occurred at that time.

During the 2000s, financial services firms have been encouraged to develop internal risk management systems and capital models. There has been a rapid growth of CRO positions in energy companies, banks and insurance companies. Boards are now investing more time in ERM due to the Sarbanes–Oxley Act of 2002 in the United States. More detailed risk reporting and other corporate governance requirements have also been introduced.

However, the financial crisis of 2008 called into question the contribution that risk management can make to corporate success, especially in financial institutions. There is no doubt that the application of risk management tools and techniques failed to prevent the global financial crisis. This failure was a failure to correctly apply risk management processes and procedures, rather than inherent defects in the risk management approach.

#### Specialist areas of risk management

Risk management is a constantly developing and evolving discipline. As well as its origins in the insurance industry and in other branches of hazard management, risk management has strong connections with the credit and treasury functions. Additionally, other specialist areas of risk management have developed over the past decades, including:

- project risk management;
- clinical/medical risk management;
- energy risk management;
- operational risk management.

All of the above specialist areas of risk management have contributed considerably to the development and application of risk management tools and techniques. Project risk management system is an area where the application of risk management tools and techniques is particularly well developed. As discussed earlier, project risk management has its emphasis on the management of uncertainty or control risks.

Clinical risk management has been developing for some time. This area of risk management is primarily concerned with patient care, especially during surgical operations. The cost of medical malpractice claims and the inevitable delay in making insurance payments has resulted in risk management systems being introduced. Particular aspects of clinical risk management include greater attention to making patients aware of the risks that may be associated with the procedure they are about to undertake.

It is also important that surgeons report incidents that occur during the surgery. Considerable emphasis has been placed in clinical risk management on the need to report, in an accurate and timely manner, details of any incidents that occur in the operating theatre. There are many publications available on clinical risk management, and a great deal of work has been put into establishing the necessary systems and procedures tocover this specialist area of risk management.

As well as project and clinical risk management, risk management tools and techniques have also been applied in a range of specialist industries. In particular, risk management techniques have been applied in the finance and energy sectors. Risk management in the finance sector focuses on operational risks, as well as market, credit and other types of financial risks. It is in the finance sector that the title Chief Risk Officer wasfirst developed.

The energy sector has also seen an increase in the attention paid to risk management tools and techniques. For some organizations in the energy sector, risk management is mainly concerned with the future price of energy and with exploration risk. Therefore, the risk management approach is similar to the activities of the treasury function, where hedging and other sophisticated financial techniques form the basis of the risk management effort.

#### **Enterprise risk management**

Another area where the risk management discipline has developed in recent times is the approach that is referred to as enterprise or enterprise-wide risk management (ERM). This approach to risk management will be discussed in more detail in a later Part. The main feature that distinguishes ERM from what might be considered more traditional risk management is the more integrated or holistic approach that is taken in ERM. In many ways, it can be considered to be a unifying philosophy that draws together management of all types of risks, rather than a new or different approach.

A good example of the ERM approach is the pharmaceutical industry. If a person is reliant on a particular medication, then it is vitally important that the medication is constantly available. From the point of view of the pharmaceutical company, this means that a core process for the organization must be the 'constant availability of medication' process.

If the pharmaceutical company takes this approach, it will look at the risks that could affect this core process or stakeholder expectation on an enterprise-wide basis. This will involve analysis of the supply chain, evaluation of manufacturing activities and analysis of the delivery arrangements. The overall question that needs to be answered is what could prevent the continuous supply of medication. Risks to the continuous supply will include unavailability of ingredients, disruption to manufacturing activities, contamination of the product, breakdown in supply transportation arrangements and disruption to distribution.

This enterprise-wide approach has considerable advantages, because it analyses the potential for disruption to the overall stakeholder expectation. Health and safety, for example, is then viewed as a component in ensuring that staff are always available so that the overall process will not be disrupted, rather than (or perhaps as well as) a separate hazard management issue.

#### Levels of risk management sophistication

This chapter describes the different styles of risk management that are currently practised. More professions and disciplines are now involved in risk management than in previous years. This adds diversity to the development of the risk management discipline.

At first, an organization may be aware of a new risk and the need to take appropriate action. In that case, there will be a need for the organization to reform in response to the hazard risk. As the organizationresponds to the risk, it will seek to conform with the appropriate risk control standards. After this stage, the organization may realize that there are benefits to be obtained from the risk. The organization will then have the ability to perform and view the risk as an opportunity risk, as illustrated in Figure 4.2.

As a simple example, a publisher might realise that it was not fully complying with equal opportunities legislation, because there was no ethnic minority representation within the workforce. The company will identify the actions necessary in order to reform its procedures, so that it complies with legal requirements.

Having achieved compliance, the publisher should become aware that a significant proportion of the workforce comes from ethnically diverse backgrounds. The company should see this diversity in its workforce as a benefit that will enable it to perform better in the marketplace by exploring opportunities to produce and publish new magazines that appeal to a more ethnically diverse readership.

The stages of reform to conform to perform represent levels of risk management sophistication. However, it is not necessary for a risk or the practice of risk management to progress from hazard to control to opportunity. In fact, risks can regress in certain circumstances. At any one time, a particular risk will be of a specific type in an organization. Benefits can be obtained from the successful management of that risk at whatever level of sophistication is appropriate at the time. In summary, risk management need only be as sophisticated as the organization requires in order to bring benefits.

Although the three levels of risk management sophistication illustrated in Figure 4.2 represent an improved approach to risk management, there is a danger that organizations will become obsessed with risk management to the point that important decisions are not taken. At this point, it may be said that too much attention and concern about risk and risk management will cause the organization

to deform its operations. Insummary:

- awareness of non-compliance REFORM;
- actions to ensure compliance CONFORM;
- achieve business opportunities PERFORM;
- inactivity caused by obsession DEFORM.

As the level of sophistication increases and risk management professionals become aware of the alternative approaches to risk management, they should value the contribution that can be made by other approaches. The development in risk management approach can be summarised as follows:

• Hazard management specialists may find that there has been a trend towards a desire to retain moreinsurable risks (and buy less insurance) as a result of a more holistic approach to risk management.

• Control management specialists must not squeeze entrepreneurial spirit and effort out of theorganization.

• Strategic planners must recognise that risk management tools and techniques can contribute tobetter strategic decisions and the successful exploitation of business opportunities.



Figure 4.1 7Rs and 4Ts of (hazard) risk management

#### 4.5 Risk maturity models

Increases in risk management effectiveness can also be measured by the use of risk maturity models. The level of risk management sophistication provides an indication of the benefits that can be achieved from risk management. The level of risk maturity in the organization is a measure of the quality of risk management activities and the extent to which they are embedded within the organization.

Risk maturity models can be used to measure the current level of risk culture within the organisation . The greater the level of risk maturity, the more embedded risk management activities will become within the routine operations undertaken by the organization. The hallmarks of successfully embedded risk management are considered in a later chapter. Risk maturity models will also be considered in more detail in a later chapter. Risk maturity is not the same as considering the level of sophistication that an organization achieves in respect to risk management. An organization may have limited expectations of risk management, but nevertheless have a very mature approach to the way in which it seeks to obtain the available benefits.

The level of risk maturity within an organization is an indication of the way in which risk processes and capabilities are developed and applied. In an immature organization, informal risk management practices willtake place. However, there is likely to be a blame culture in existence when things go wrong and a potential lack of accountability for risk. Also, resources allocated to manage risks may be inappropriate for the level ofrisk involved.

When explicit risk management is in place, there will be attempts to keep the processes dynamic, relevant and useful. There is likely to be open dialogue and learning so that information is used to inform judgements and decisions about risks. There will be confidence that innovation and risk taking can be managed, with support when things go wrong.

When an organization becomes obsessed with risk, there will be over-dependence on process and this may limit the ability to manage risk effectively. There will be over-reliance on information at the expense of goodjudgement, and dependence on process to define the rationale behind decisions. Individuals may become risk averse for fear of criticism and procedures are followed only to comply with requirements, not because benefits are sought.

# **Chapter 5**

# Principles and aims of risk management

#### **Principles of risk management**

Risk management operates on a set of principles, and there have been several attempts to define these principles. British Standard BS 31100 sets out 11 risk management principles and the international standard ISO 31000 also includes a detailed list of the suggested principles of risk management. The following list is a consolidated version of these documents. It is suggested that a successful risk management initiative will be:

- Proportionate to the level of risk within the organization;
- Aligned with other business activities;
- Comprehensive, systematic and structured;
- Embedded within business processes;
- Dynamic, iterative and responsive to change.

This provides the acronym PACED and provides a very good set of principles that are the foundations of a successful approach to risk management within any organization. A more detailed description of the PACED principles of risk management is set out in Table 5.1. The approach to risk management is based on the idea that risk is something that can be identified and controlled.

The above statement of principles relates to the essential features of risk management. These principles describe what risk management should be in practice. Some lists of principles also include information on what risk management should do or deliver. It is useful to separate the principles of risk management into two separate lists: what risk management should be, as listed above; and what it should deliver, as listed below:

• Compliance with laws and regulations;

- Assurance regarding the management of significant risks
- Decisions that pay full regard to risk considerations;
- Efficiency, Effectiveness and Efficacy in operations, projects and strategy.

Table 5.1	Principles	of risk	management
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Principle	Description
Proportionate	Risk management activities must be proportionate to the level of risk faced by the organization.
Aligned	Risk management activities need to be aligned with the other activities in the organization.
Comprehensive	In order to be fully effective, the risk management approach must be comprehensive.
Embedded	Risk management activities need to be embedded within the organization.
Dynamic	Risk management activities must be dynamic and responsive to emerging and changing risks.

This provides the acronym CADE3 and confirms that outputs from risk management will lead to less disruption to normal efficient operations, reduction of uncertainty in relation to change and improved decisions in relation to evaluation and selection of alternative strategies. In other words, a key part of risk management is improved organisational decision making.

The resources available for managing risk are finite and so the aim is to achieve an optimum response to risk, prioritised in accordance with an evaluation of the risks. Risk is unavoidable and every organization needs to take action to manage it in a way that it can justify to a level that is acceptable. The appropriate range of responses to a risk will depend on the nature, size and complexity of the risk.

#### **Importance of risk management**

Table 4.2 gives a number of examples that illustrate the importance of risk management. Risk management has become increasingly high profile in recent times, because of the global financial crisis and the number of high profile corporate failures across the world that preceded it. Also, risk management has become more important because of increasing stakeholder expectations and the ever-increasing ease of communication.

As well as assisting with better decision making and improved efficiency, risk management can also contribute to the provision of greater assurance to stakeholders. This assurance has two important components. The directors of any organization need to be confident that risks have been identified and that appropriate steps have been taken to manage risk to an appropriate level.

Also, there is greater emphasis on accurate reporting of information by organizations, including risk information. Stakeholders require detailed information on company performance, including risk awareness. The Sarbanes–Oxley Act of 2002 (SOX) in the United States has accuracy of financial reporting as its main requirement. SOX brings the issue of the accurate reporting of results to a higher priority (section 404), whilst also requiring full and accurate disclosure of all information about the organization (section 302).

Although Sarbanes–Oxley is a specific piece of legislation that only applies in certain circumstances, the principles that it contains are vitally important to all risk management practitioners. Accordingly, later parts of this book consider risk assurance and accurate reporting as integral parts of the overall risk management process.

#### **Risk management activities**

Risk management is a process that can be divided into several stages. The IRM Risk Management Standard provides one representation of the stages involved in the risk management process. Alternative illustrations of the risk management process can be found in the British Standard BS 31100, the International Standard ISO 31000 and in other publications. These standards will be considered in more detail in Chapter 6.

Figure 4.1 (page 40) illustrates the stages in the (hazard) risk management process. The terminology that is used to describe the stages in the risk management process has been deliberately selected, so that the process can be represented as the 7Rs and 4Ts of hazard risk management. Table 4.3 provides more information on each of the stages illustrated in Figure 4.1.

ISO Guide 73 and British Standard BS 31100 describe the risk management process as the systematic application of management policies, procedures and practices to the tasks of communicating, consulting, establishing the context, identifying, analysing, evaluating, treating, monitoring and reviewing risk. However, it could be argued that the setting of policies, procedures and practices, together with the tasks of communicating, consulting and establishing that context

are actually part of the risk management framework, rather than the risk management process itself.

Within this book, the risk management process is taken as a narrow set of activities, described above as identifying, analysing, evaluating, treating, monitoring and reviewing risk. This pro- vides a clear distinction between the risk management process and the framework that sup- ports this process. Descriptions of the risk management process together with the risk management framework are required in order to produce a comprehensive risk management standard.

There has been much discussion about whether a single risk management process and/or diagram can be used to describe the management of hazard risks, control risks and opportunity risks. This book uses different terminology to describe the three types of risks and, there- fore, Figure 4.1 and Table 4.3 are used to illustrate the stages in the hazard risk management process only.

There are a number of options when responding to hazard risks. These are often represented as the 4Ts of hazard risk management, and these risk response options will be considered in more detail in a later part of this book. In summary, the options for responding to hazard risks are:

- tolerate;
- treat;
- transfer;
- terminate.

#### Efficient, effective and efficacious

Insurable or hazard risks can have an immediate impact on operations. Therefore, the initial application of risk management principles was to ensure continuation of normal efficient operations.

As risk management has developed, emphasis has been placed on project management and the delivery of programmes to provide enhancements to business processes. Processes must be effective in that they deliver the results that are required. For example, there is limited value in having a software program that is efficientif it does not deliver the range of functions that are required.

Strategic decisions are the most important that an organization has to make. Risk

management delivers improved information so that strategic decisions can be made with greater confidence. The strategy that is decided by an organization must be capable of delivering the results that are required. Such a strategy may be described as efficacious. There are many examples of organizations that selected an incorrect strategy or failed to successfully implement the selected strategy. Many of these organizations suffered corporate failure. Strategy should be designed to take advantage of opportunities. For example, a sports club may identify the possibility of selling more products to its existing customer base. Some clubs will establish a travel agency for fans of the club who travel overseas, together with the provision of associated travel insurance. Also, there is the possibility of creating a club credit card that will be managed by a new finance subsidiary.

Having identified these possibilities, the club will need to look at the risks associated with these potential opportunity investments and devise a suitable programme of projects to implement the selected strategies. Ensuring that adequate account is taken of risk during all of these activities will increase the chances of selecting the correct efficacious strategy, designing the appropriate effective processes and, ultimately, ensuring efficient and profitable operations.

Organizations that have efficient operations and effective processes but an incorrect overall strategy will fail. This will be the case, however good the risk management processes are at operational and project level. Incorrect strategy has resulted in more corporate failures than inefficient operations or ineffective processes.

#### Perspectives of risk management

In a rapidly developing discipline like risk management, there is scope for different practitioners to become intolerant towards the approach adopted by others. Internal control specialists who believe that risk management is all about the management of uncertainty and the achievement of corporate objectives should not become intolerant of the more traditional insurance risk management approach. There is no value in one group of specialists being dismissive of the approach adopted by others and being unwilling to utilise the expertise that is available in another group.

In any case, there is no single style of risk management or approach to risk management that offers all the answers. Clearly, the various styles that can be adopted should operate as complementary approaches within an organization. The integrative approach to risk management accepts that the organization must tolerate certain hazard risks and must have an appropriate appetite for investment in opportunity risks. Risk management tools and techniques should be brought to achieve the following:

- Hazard management makes outcomes less negative.
- Control management reduces the spread of possible outcomes.
- Opportunity management makes outcomes more positive.

Hazard management will make the outcome of any hazard event less negative. Within the context of hazard management, insurance represents the mechanism for restricting the financial cost of losses when a risk materialises. Risk control and loss management techniques will reduce the expected losses and should ensure that the overall cost is contained. The combination of insurance and risk control/loss management will reduce the actual cost of hazard losses and this will inevitably (and correctly) cause the hazard tolerance of the organization to reduce. More of the risk capacity of the organization will then be available for opportunity investment.

Control management reduces the range of possible outcomes from any event. Control management is based on the established techniques of internal financial control, as practised by internal auditors. The main intention is to reduce losses associated with inadequate control management at the same time as reducing the range of possible outcomes. This is the contribution that internal control should make to the overall approachto risk management within an organization.

Opportunity management seeks to make positive outcomes more likely and more substantial. As part of the opportunity management approach, the organization should also look at possibilities for increasing the revenue from the product or service. In not-for-profit organizations, opportunity management should facilitate the delivery of better value for money.

These reward enhancement options can be discussed at strategy meetings and some options may be adopted, including the introduction of bonus and incentive schemes for staff and management. Clearly, in light of the lessons learnt from the global financial crisis, these incentive schemes should be balanced and should not reward excessive risk taking.

#### **Implementing risk management**

This chapter has considered the principles of risk management that describe what risk management should be and what it should deliver. Although organizations may realise that there are benefits from implementing risk management, the successful implementation has to be undertaken as an initiative or project. Appendix B sets out a detailed consideration of the stages involved in the successful implementation of an enterprise-widerisk management initiative.

There will be a more detailed consideration of the barriers and enablers for implementation of risk management in a later Part. The most important point to make is that the support of senior management and (ideally) the sponsorship of a board member is essential. Also, an implementation plan to address the concerns of employees and other stakeholders is needed. Although risk management is vital to the success of an organization, many managers may need to be persuaded that the suggested implementation approach is correct.

It is important to note that all activities and functions undertaken by managers should not be claimed by the risk manager as being undertaken in the name of risk management. Not all activities in the organization will be driven by risk management, even if all decisions, processes and activities have risks embedded within them.





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