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Aims

The aims of this unit are to:

- describe and examine the differences between incidents, emergencies, crises and disasters;
- examine the theoretical explanations of the causes of dangerous events;
- assess the strengths and weaknesses of different strategies used by organisations to reduce the risk of dangerous events;
- familiarise students with strategies and structures for the management of dangerous incidents; and
- explain the psychological basis of decision-making and stress during critical incidents.
1 Study guide

Before you attempt any of the exercises or begin work for an essay assignment we recommend that you pay some attention to the following notes, which are designed to improve your study technique. Some of you may find these notes more helpful than others. However, it is recommended that whatever technique you finally adopt for studying, it should be systematic and rigorous.

1. Try to be systematic. The unit has been organised so that you can gain the greatest benefit by reading the material in the order in which it is presented.

2. Try to read each section twice, making brief notes of your own. This will prove a useful habit.

3. You will from time to time come across new words or jargon (called by social scientists the ‘argot’) with which you are unfamiliar. If after looking up words in a dictionary and re-reading the text the meaning of the word is still not apparent to you, then do contact your tutor for clarification. Studying a new subject in the social sciences is a bit like learning a new language: at first there will be many new terms. Gradually you will become familiar with these terms.

4. Try to read through an entire module at least once before attempting to carry out an assessed assignment. This will give you an overview of the subject areas, which is useful for formulating your own arguments.

5. Make a note of the way bibliographic texts are presented in the units. There is a distinction between the ways that single-authored books, articles from edited books and journal papers are referenced. You will need to show your own bibliographic sources when presenting assignments in a similar manner.

Much of the material presented to you will set up a number of conceptual problems. For example, the terms ‘risk’, ‘crisis’ and ‘disaster’ are perceived quite differently by theorists. Sometimes quite powerful arguments are presented to support theories that conflict with those found in other units and modules. This is because much of this theoretical work is contemporary and is still being developed. This may seem a little confusing at first. However, with time and experience you will get used to this and learn to relate conflicting theories.
In addition to these course materials you are strongly advised to purchase or secure the following three books to support your studies:


The following books may also prove useful:


2 Introduction

Organisations are under pressure to respond to crisis situations for two reasons. First, a crisis will affect an organisation’s ability to trade, with potential implications for profit, reputation and survival. Second, a crisis can rapidly descend into media speculation about organisational dealings and affairs, making it impossible to function normally. An ability to be able to respond to crisis events is, therefore, as important as the very risk management measures taken to prevent them. This point cannot be emphasised too strongly! In the level one unit *Introduction to the Management of Risk* a variety of risk management theories were presented. While all of these theories offer a sophisticated analysis of how risk comes about, there is still no complete method of risk management. Frequently, organisations put all their efforts into risk assessment and prevention, under a misguided assumption that risk can be effectively squeezed out of the system. A dangerous trend towards the tick-box culture, safety cases and finitely engineered project risk management approaches, while sometimes useful, cannot guarantee 100% protection. Hence a generic ability to respond to crisis events is a pragmatic business need for any organisation. This process – sometimes described as ‘crisis management’, ‘contingency planning’ or ‘business continuity planning’ – may also have added peace-time effects. When practiced properly crisis management can enable organisations to take up opportunities. Corporate activity, whether for profit or public service provision, will involve taking risks. As soon as any organisation begins to function it is therefore at risk.

This unit examines the role of the corporate risk and security manager acting as part of the management team responding to organisational crises. Contingency planning and crisis management are frequently the responsibility of security and risk managers. Much can be done to ameliorate risks through insurance, better health and safety management, pro-active risk assessments and monitoring, improved safety or security culture. However, risk is still a very real possibility. Ironically, the better we become at managing risks the more complex and difficult to handle the organisational failures that slip through the net become. The nature of organisations has changed considerably in recent years; new forms of organisational structure and communication have radically altered the way we work. Operating in the global environment has also affected much of the legislation and regulation of organisations.

Today, risk has become an omnipresent phenomenon. Risk is the hidden danger lurking beneath everything that we do. From the moment the unborn child is established through to death, we are at risk from something. Our behaviour, diet, procreation, travel, homes and work are all subject to risk. There is no one single risk-free aspect to our lives. Sometimes these risks are easily apparent – for example, driving too fast or smoking tobacco. However, risks can also become obscured,
due to conflicting or complex arguments surrounding safety. Debates about nuclear power, transport and the environment are by no means exclusive examples of activities where experts themselves disagree about the risks posed.

Contemporary interest in risk, at least among academics, can be traced to the seventeenth century and the advent of capitalism (Todhunter, 1865). Capitalism brought new speculative risks associated with entrepreneurial activity, for example, when and what type of business to engage in and with whom business should be conducted (Douglas, 1985).

Alongside this increased entrepreneurial activity emerged the insurance industry, specifically interested in quantifying what are sometimes called ‘pure risks’ by means of actuarial records. For over a hundred years insurance companies have been attempting to identify and record personal and third party loss using this method. Within a given population there is a statistical propensity for certain proportions of that group to suffer from adverse exposure to a risk. Insurance actuaries calculate and aggregate these pure risks as a percentage figure for the population. These figures can then be used to quantify the level of premiums charged for insurance cover.

More recently, this methodology has been brought into question. Retrospective changes to health and safety legislation, advances in medical diagnostic techniques and social behaviour have all contributed to this. The heavy financial losses sustained by the ‘names’ at Lloyds of London are one example of how the world has changed. More recently we have witnessed huge corporations such as Enron, Andersons and Barings Bank demonstrate the way threats to organisations have become more complex and difficult to respond to. The recent publicity given to sufferers of asbestosis offers another illustration of how huge retrospective claims can be made against insurers, often twenty or thirty years after negligence has taken place.

Social changes have also cast doubt on the efficacy of an actuarial methodology. For example, increased poverty during times of economic recession has been linked to soaring crime rates, particularly burglary and car crime. However, by the time actuary records can be brought up to date and adjusted to reflect changed risk, many claims will already have been registered. The German theorist, Beck, argues that we are in a state of major transition from a class to a risk society. In his book Risk Society he argues that the fundamental arbiter of acceptable risk for the future will be the insurance industry (Beck, 1992).

For Hood and Jones (1996), it is social concerns about ‘health, safety and security’ in society that have brought risk to the forefront of contemporary debate. These concerns have resulted in major shifts in social habits and practices. The health debate is particularly interesting and topical. Contemporary society, it is argued, has shifted away from a position where people are concerned about having enough to eat – instead we are now becoming more concerned with the risks associated with particular foods (Beck, 1992). Past scares about salmonella food poisoning in poultry and eggs, BSE from infected cattle, and the now widespread practice of vegetarianism in Europe suggest strong links between risk and health.
Organisations are under increasing pressure to comply with a variety of corporate legislation affecting the behaviour, performance and governance of activities. The role of the judicial process and litigation trends have also played a major part in constructing contemporary social attitudes to acceptable risk. A massive legal industry has grown around the legal adjudication of risk issues. One criterion for the legal involvement in risk is to establish blame, guilt, liability or negligence. The ‘no win, no fee’ practice in America has contributed to the generation of a huge specialised legal industry associated with adjudicating such risk claims. However legal claims are funded, this area of legal involvement in risk has aroused some social controversy.

Another mode of involvement for the judiciary can be observed from the large number of public inquiries following major disasters. The role of the judiciary in these contexts has also been subject to some controversy. Public inquiries have a function to establish both causality and blame, and this may pose a dilemma for those giving evidence. The need to tell it as it was may be seriously compromised when personal or corporate identities and liability are at stake. This area of legal interest in risk has also aroused much controversial debate. Questions such as ‘who is to blame?’ ‘who should be compensated?’ and ‘how can future disasters be prevented?’ have highlighted the complexity of modern risk management.

Risk is now of key interest to the business community, who wish to limit potential corporate liability. This area of risk is concerned with fundamental threats to business operation and viability. The Kobe earthquake in Japan and terrorist bomb outrages against the City of London and Manchester in the UK highlight the diverse nature of risks posed in this area.

Until the 1980s commercial risks could be distinguished as ‘pure’ and ‘speculative’. Pure risks were the ‘acts of God’ covered on insurance certificates. Fires, floods, land movements and storm damage are examples of these. Speculative risks are the business failures that entrepreneurs entered into willingly. This distinction no longer holds for most contemporary organisations. For example, the loss of a building and its contents, while catastrophic, is theoretically replaceable by insurance. However, the loss of the systems, both technical and human and the complex interactions between them, are what makes the product or service come about.

Security is becoming a key area of significance for organisational risk management. The effects of high-profile events such as 9/11 in New York have wider implications for corporate activity beyond the Twin Towers themselves. The effects of terrorism in the financial areas of London and Manchester suggest that a distinction between accidents and design are false and may lead to risk myopia. Although security has emerged as an academic study only recently, debate about the constitution of a discipline and profession of security has aroused much contemporary debate (Borodzicz, 1996a, b). Security could be seen as risk management in practice; one theorist, Sally Lievesley, has even argued that security is the wrong term altogether and that this should instead be called ‘risk engineering’. Again, practice in this subject is beginning to respond to social changes, in the form of health and safety
legislation, modern policing practices and the emergence of a huge private security industry.

Chapter three of this unit will look at business continuity planning. This is a new area of academic study but already an established professional activity. Business continuity planning is about achieving a balance between preparing for situations in which contingency plans will have to be used and then doing everything possible to stop them ever having to be used.

Chapter four looks at the role of the emergency services. Organisational risk and security managers need to understand how the emergency services operate, communicate and what restrictions their activities may have on post-incident management of an organisation during and after a crisis. This chapter also has particular significance because many large organisations already use contingency plans similar to the emergency services. The similarity is no accident: many risk and security management staff are police officers in their second career. It is therefore hardly surprising that many emergency plans look very similar. Readers may wish to consider the appropriateness of these plans in the context of large corporate organisations.

While risk and security professionals do not need to be experts in the management of civil emergencies and disasters, a good understanding of the role of the emergency services is essential. The nature of a crisis event is such that it is unlikely that any organisation will be able to respond sufficiently on its own without the specialist services of the police, fire or ambulance. Understanding what these services will and will not do for you in a crisis is therefore key to developing contingency plans. These organisations are by their nature highly disciplined and structured in the way they respond, therefore understanding how to tap into their command and decision-making structures is essential. Local authority emergency planners are another important part of the disaster recovery process, often acting as an information conduit through which a number of agencies can communicate. For example, at the Kegworth plane crash in England in 1989, there were at least four fire services, four ambulance services, three police forces, as well as RAF helicopters, mountain and mining rescue teams, the army and the Salvation Army involved, plus the passing motorists who began the rescue operation (AAIB, 1990). In another study of a massive fire where 14 million rubber tyres burned for 18 days, at Nanticoke, Canada in 1990, it was found that 346 different organisations (such as government departments, emergency services, hospitals and self-help groups) were on the site of the disaster (at the scene, within the evacuation perimeter, or crossing the police check point) (Scanlon and Prawzick, 1991).

In chapter five the organisational context of failure will be reviewed. Two theoretical positions are reviewed; Turner’s incubating disaster model and Perrow’s normal accident theory. These theories are important as they help us to understand the process of failure in organisations.
Chapter six looks at the qualitative difference between various types of dangerous events and considers how these might affect response. Three types of scenario are considered: emergency, crisis and disaster. The importance of distinguishing between these types of events is discussed in terms of both contingency planning and crisis response.

Chapter seven looks at simulation and gaming as a methodology for preparing for organisational crisis. The chapter will briefly introduce tactical decision games and consider issues of exercise design, de-briefing and evaluation.

Chapter eight deals with one of the key skills required by incident response teams: decision-making. It introduces a relatively new field of applied psychological research called naturalistic decision-making, which studies how experts make decisions in demanding real-world environments. This is particularly applicable to the policing of critical incidents, and several explanatory models and taxonomies from the NDM research literature are discussed. The need for incident commanders to diagnose the situation and to have more than one decision style at their disposal is emphasised. Techniques for training decision-makers are reviewed at the end of this chapter.

Chapter nine provides three case studies that can be used to illustrate the arguments made in the unit. Two of the case studies consider fires, although the context of the fires are quite different – an underground station and a university.

The other case study, in contrast, looks at the process of business continuity training in a major UK Bank. This case study is particularly useful in demonstrating a typical organisation that an internal security department or consultant may have to work with.

Chapter ten concludes the unit with some discussion about the need for further academic research into business continuity training.
3 Business continuity

The most serious risk that can be posed to any organisation is that which threatens its survival. This area of increasing concern is referred to as ‘business continuity’, ‘contingency management’ or ‘crisis management’. The need for improved business continuity management (BCM) is increasingly accepted as sensible and pragmatic (Rolfe, Saunders and Powell, 1998). This has been accompanied by the emergence of a number of practitioner-based associations; for example, the Business Continuity Institute has a large and rapidly growing membership, which is graded in accordance with perceived ability and experience. There is also increased interest from commercial organisations with a number of international conferences and workshops on the subject (BFI, Survive, H.O. Emergency Planning College). The UK government has also demonstrated interest in promoting BCM through a number of Home Office documents (1997a, 1998) and ministerial attendance at some of the workshops. The former UK Prime Minister, Tony Blair, raised BCM to the political agenda, when he called for a concerted approach to confront the millennium computer bug.

While business continuity management has emerged in recent years as an area of management expertise in its own right, there is still very little academic work in this area. It is worth noting how this term came about. Elliott, Swartz and Herbane (2002) suggest that the evolution of BCM can be divided into three phases: ‘technology’, ‘auditing’ and ‘value’ based.

In the first phase, during the 1970s and 1980s, the focus was on technology. Business continuity planning was about the protection of hardware systems vital to organisational performance. This area of BCM has grown considerably in recent years with an increasing prevalence of IT systems in virtually all aspects of organisational life. It is hard to think of any organisation where the computer is not vital to successful operation. In this respect BCM is about the prudent management of IT resources in a large corporate system. Triggers are likely to be external physical factors, for example, flood, fire, power failure or terrorist attack. Hence the focus for response to these types of scenario is likely to be on the ability for an organisation to arrange alternative sites and sufficiently rich back-up systems to enable the organisation to continue to function after the attack. A number of commercial organisations already offer sophisticated IT back-up system services for these types of eventuality; very large organisations are likely to be able to do this themselves.

The second phase of BCM outlined by Elliott et al. began during the 1980s and 1990s. This second phase can be characterised as a shift in emphasis to the auditing of organisational systems in order to comply with corporate governance and regulatory pressures. Organisations are now under a greater degree of regulatory control than ever before.
Three reports have been highly influential in the debate on corporate governance: Cadbury (1992), Hampel (1998) and Turnbull (1999). These reports can be seen, fundamentally, as a reaction to a number of high-profile corporate disasters in the last two decades. One school of thought here is that the focus of these initiatives is to drive up standards of regulation for the owners/shareholders of companies (Sternberg, 1998). Recent research carried out by Knight and Pretty (1998), for example, suggests a very high correlation between organisational disaster and share price.

In summary, these reports can be seen as an extension of the economic model espoused by Friedman (1962), with an objective of maximising shareholder value and return. In this case the model is extended to include senior managers or directors as ‘quasi-owners’. Concerns about over-regulation, however, are a pervading issue for this school. As put by Sternberg:

> Regulation is inflexible. In formalising and clarifying unwritten guidelines, it also typically lowers standards; compliance no longer requires a margin of safety, but can be obtained by satisfying the letter of the law.

(Sternberg, 1998: 110)

It is already becoming clear that these reports are having a major effect on the overall regulation of publicly listed companies and those with a financial stake in them.

A second school of thought suggests that customers and the wider community are also stakeholders in organisations, particularly where the organisation provides a valued social function, such as transport, health and education. There is certainly evidence emerging to suggest that directors will increasingly need to be accountable for the failure of their risk management policies. The debates surrounding ‘corporate manslaughter’ (Wells, 1995) following a number of tragedies have highlighted the often intense and highly emotional response from victims and the wider community. In this context, failures in accountability may be more difficult to define and redress, particularly when this must be established through the complexities of the legal system.

Find some cases of corporate manslaughter and think about the effects of the incidents on organisations’ risk management policies.

Organisations defending accusations of negligence would have a variety of strategies available to them. For example, they may attempt to use institutional ‘scapegoating’ by arguing that individual staff actions in non-managerial positions were highly unusual in the context of normal operating conditions and/or quite unreasonable in the normal performance of their work. Under British common law, individual staff members prosecuted for failure to exercise due care might wish to use the absence of a corporate plan/procedures as a defence. Courts are also reluctant to prosecute...
individuals for negligence in the absence of clear indicators such as alcohol or drug abuse or direct contravention of organisational rules and practices.

Another approach might be to argue that a third party responsible for supply and maintenance of equipment or advice were at fault. In this case the sheer complexity of management systems involved makes the burden of proof very difficult to establish, if only because of the complexity of legal liability law. Despite various attempts to invoke the new law of corporate manslaughter, it has been very difficult to prove criminal culpability following major disasters.

While these two schools could be seen as opposing ends of a spectrum, clearly any large and complex organisational system involving public and private interests requires some system of regulation. This raises an interesting question about the extent to which good regulation of commercial risk management may be balanced against improved social provision.

Think about the notion of blame. Discuss with your fellow students or colleagues the move to a more culpable approach and its impact on organisations' risk management.

The debate about the effectiveness of different types of regulation is fairly well established. Posner (1974) referred to 'regulatory capture', a concept by which regulation of an industry will increasingly fail the regulated. Much of this debate revolves around the availability of information to both the regulated and the regulator. For example, it is sometimes argued that regulated organisations are able to withhold or use information commercially available to them in order to gain an advantage on the regulators. One of the major problems with drafting regulatory contracts is that they can never include sufficient detailed guidance for the management of situations yet to occur. This may be managed through a degree of regulatory flexibility within the contract, although in practice effective implementation for situations of extreme risk have proved problematic (Borodzicz, 1996a; 1999).

The third phase of business continuity management outlined by Elliott et al. is described as the 'value-based' phase. Here the emphasis moves away from compliance to understanding how the organisation itself works and improving performance. BCM in this phase is not just about minimising downside risks, but also recognising that human and social risks are as important – if not more so.

It is suggested here that the nature of many organisational systems may themselves represent a constraining factor for crisis management. Most organisations typically consist of a number of separate departments staffed by appropriate experts. Typically, in such structures communication will take place vertically rather than horizontally. In any case experts will by nature be interested in risks that are pertinent to their own sphere of interest and expertise.
In most organisations it is not clear who is responsible for the management of total risk and there is unlikely to be a central department whose task it is to collate all the potential risks. Typically, responsibility is compartmentalised: personnel or establishment deal with health and safety issues, finance deal with financial risks, there is usually a fire and first aid officer, and building maintenance deal with risks to the physical structure of the organisation. In this context, overall risk management for the organisation is usually left to a security manager, stationed in a portakabin somewhere on the periphery of the organisation, both geographically and socially. In the aftermath of a major incident, such compartmentalised responsibility can impede an organisation’s ability to learn from and recover from a crisis. The managerial convenience of such a compartmentalised approach is amply illustrated by this quote taken from Crainer’s study of the Zeebrugge disaster: ‘Don’t tell me what is going on because if I know, I might be held accountable’ (Crainer, 1993).

The problem here is the lack of understanding of the risk systems involved and of meaningful dialogue (risk communication) between apparently discrete parts of the organisation. The division of risk analysis means that different parts of the organisation become managed as sub-systems in their own right, and that little attention is paid to the interaction of these sub-systems. The only risks that are taken seriously are those that threaten the integrity of a sub-system, but these are themselves defined by experts in that sub-system. Such discrete risk analysis is unlikely to take account of the global effects of system failures.

The organisational structure in which system failure takes place can also contribute to the risk. Tightly coupled systems as described by Perrow (1999) tend to be rigidly controlled from the centre of operations. Operators in such systems are trained to adhere strictly to prescribed rules and procedures (created, ironically, for safety reasons) but these can act to limit the scope for innovative and flexible responses by operators confronted with risky situations. One key feature found in the successful management of ill-structured crisis situations is the flexibility of working arrangements. This is in stark contrast to the highly structured and inflexible procedures characteristic for most security arrangements (Borodzicz et al., 1993; Borodzicz and Pidgeon, 1996). Ironically the structure and design of many BCM exercises also encourage players to adopt highly structured and inflexible management procedures.

Go to the Home Office website at:

www.homeoffice.gov.uk/security

Follow the links to look at their simulation training exercises for crises.

One source of stress for management teams responding to a crisis is dealing with the media. When a major incident occurs the press and broadcast journalists will be at the scene of the event within the first hour and will often expect to be able to
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Interview senior personnel from the organisation. While there may be major incident procedures designed to cope with this, such as staff dedicated to media duties who can provide briefings, this will not always satisfy the demands of the media. Senior staff should be given media training and usually have significant experience dealing with journalists; a crisis or disaster will attract the international media and managing their requirements can provide another difficult demand for the incident commander. There are a number of useful books on dealing with the media, although these tend to focus on corporate crises rather than civil emergencies (Seymour and Moore, 2000).

Make short notes on the following:

■ Why is business continuity a requirement?

■ What are the three phases of business continuity?

Suggested further reading:


4 The role of the emergency services

One way organisations might approach crisis management is by learning from the experience of principle emergency services. These services have considerable experience and expertise in the area of emergency management, which is complemented by an extensive range of simulation training programmes. It could be argued that many organisations have already imported the emergency services model. Staff who gain employment as organisational security or risk managers are frequently ex-police or military personnel, and hence they often bring much cultural baggage with them (Borodzicz, 1997). There is also a developing literature questioning standards of competence in the security industry. Some theorists argue for tighter regulation enforced through legislation. For example, George and Button (1998) argue that legislation for the security industry is long overdue and illustrate this by means of current standards and practice.

For the emergency services, simulations and training exercises offer staff the only means of understanding and participating in disaster management before a real one happens. Simulated training exercises can also be used to train organisations that need to work together in order to deal with disasters. Multi-service response exercises are increasingly recognised as of value and importance for the emergency services. This is highlighted in many of the official reports produced by both the government and the emergency services themselves (HSE, 1991; Home Office, 1992a, b, c; London Emergency Service Liaison Panel, 1992).

Until recently the emphasis among the emergency service organisations was on producing rigorous and highly detailed plans and command structures for emergency situations. These would be supported by a number of simulation exercises run at a desktop and in realistic settings. ‘Command and control’, ‘tactical, strategic and operational’ or ‘gold, silver and bronze’ are examples of highly structured command structures based on highly disciplined ‘top down’ militaristic modes of operation. Typically such an approach would include extensive use of checklists, pre-drilled response techniques and communication procedures. Borodzicz (1997) found that such a disciplined and pre-ordained response was acknowledged as essential. However, for ill-structured crisis situations, a very different response style was needed based on flexibility and negotiation, concepts alien to the emergency services and the military in both staff selection procedures and training.

The primary motive for response to crisis in the three principle services can be viewed as three different approaches to the same basic problem: saving lives. The police do this by co-ordinating the emergency services response. The fire service saves lives through search and rescue. They do this by preventing and responding to chemical,
fire and other dangerous incidents for which they are specifically trained. The ambulance service offers treatment, stabilisation, care and transport to those injured at the scene. In theory and practice, the three principle response agencies provide a distinct and complementary service to each other, which neatly fits together in order to provide a comprehensive emergency response to most types of emergency situation. However, ill-structured crises are in contrast a challenge to any pre-conceived emergency plan.

While all three services are concerned with the protection and saving of life in major crisis situations, their ways of achieving this are different and over the years (with the introduction of advanced technology) have become so highly sophisticated that most people are largely unaware of what they can now do. The police have skills in the management of people and are able to quickly mount a communications context and sterile area in which other response services can operate. The fire service has expertise in the treatment of a multitude of hazardous phenomenon (not just fires) and the rescue of trapped people. The ambulance service, rather than simply providing a transportation medium for the sick, infirm and injured also now carry paramedics and some quite sophisticated medical diagnostic and life-saving equipment (legally, paramedics are the only people, other than doctors, permitted to carry out diagnostic procedures and administer drugs and treatment to patients).

It would be pertinent to consider some contextual information relating to the hierarchical structure of the response services, and the historic reasons for their present manifestation. It is further worth mentioning that the response arrangements in the UK are regionalised; arrangements, although similar, may vary slightly from area to area.

Primarily the police have a co-ordinating role in major emergencies. Police staff are equipped with only rudimentary skills in first aid and fire fighting, but their main role is to facilitate the other agencies by providing them with a sterile area to operate in, and access routes to and from the scene. The police operate a management structure known as ‘gold/silver/bronze’ for dealing with major incidents. This is in order to co-ordinate the police presence. Bronze level corresponds to ‘officers on the ground’, providing the visible police presence. Silver level can be characterised as the frenzied ‘control’ or ‘incident room’, set up at the local police station co-ordinating the local response. In contrast, gold command can be portrayed as a remote police head-quarters, where major policy decisions and agreement to strategic resources can be made by very senior officers. The gold commanders should thus be able to take a global overview of the situation; in practice this may also be true for silver.

The best (unrestricted) description of the UK emergency services’ command structures and procedures for a major incident can be found in the Home Office publication Dealing with Disaster, first published in 1992 and now in a third edition (1997). This gives general principles for the operational management of major incidents and defines command as ‘the authority for an agency to direct the actions of its own resources (both personnel and equipment)’. The term control is defined as:
The role of the emergency services

The police typically have a co-ordinating role and responsibility for control of the disaster site, although control of specific functions, for example rescue or medical evacuation, may be assigned to one of the other emergency services.

According to *Dealing with Disaster* (Home Office, 1997), the police and fire service definition of a ‘major incident’ is as follows:

A major incident is any emergency that requires the implementation of special arrangements by one or more of the emergency services, the NHS or the local authority for:

- the initial treatment, rescue and transport of a large number of casualties;
- the involvement either directly or indirectly of large numbers of people;
- the handling of a large number of enquiries likely to be generated both from the public and the news media usually to the police;
- the need for the large scale combined resources of two or more of the emergency services;
- the mobilisation and organisation of the emergency services and supporting organisations, e.g. local authority, to cater for the threat of death, serious injury, or homelessness to a large number of people.

(p. 38, first edition)

The police also have an important role to perform in detecting crime and bringing to prosecution those responsible. This can sometimes involve collecting evidence while the response to a crisis is underway. In cases of arson or terrorism, this role takes on particular significance.

Historically for the police, large incidents can be characterised as the management of people’s behaviour at large public gatherings. Operationally at such incidents, the police need to maintain social order, dictating that vital tactical and strategic key decision-makers are kept geographically remote from the scene. This remoteness ensures the preservation of the response decision-making process from being subsumed by the incident itself.

In contrast, the fire service take their command structure to the incident itself. Fire service operational performance depends upon being able to respond to the physical nature of an incident’s requirements. The organisation is highly disciplined and is run along quite militaristic lines, involving inspections and parades where fire officers are expected to turn out smartly. There is a pre-arranged level of seniority which will correspond to the size of the fire service response at the scene of any incident. When an incident requires a greater number of appliances, a more senior officer will automatically be posted to the scene in order to take over the command. The fire service have a history of dealing with large fires. In order to minimise the risks to fire
service personnel at the scene, and in contrast to the police service, major tactical
decisions need to be made as near to the scene of operation as possible. Fire
service safety management also requires the establishment of an ‘inner cordon’ or
‘rescue zone’, within which humanitarian services, damage control and salvage can
be effected. They will also advise the police about wider evacuation issues.

The ambulance service needs to be considered in the context of National Health
Service (NHS); their duty is directly to the patient. As well as providing medical care
to the patients themselves they are responsible for bringing other parts of the NHS to
the scene of trapped or sick individuals. They need to co-ordinate with other sections
of the NHS regarding resources for dealing with survivors while still maintaining an
emergency cover for the rest of the area. Ambulance personnel may need to enter
an inner cordon area, or advise the fire service about the treatment of injured persons
within that area. The ambulance service will also need to liaise with the police
authorities about the identities and numbers of casualties removed, and assist the
police with more difficult evacuation areas, for example, hospitals, nursing homes and
sheltered accommodation units.

The ambulance service also has an emergency plan. The first role in such a plan is to
estimate the number of casualties, and then if necessary to mobilise a surgical team.
At large incidents they would also arrange for parking and loading officers to be
present, but this can often mean using up valuable trained paramedics who may be
more effectively used elsewhere. The ambulance service also operates an automatic
backing up procedure which, similar to the fire service, involves drawing in resources
from the surrounding area to replace the local ones deployed.

What are the management (command and control) arrangements for handling an
emergency or major incident? In the UK each of the major emergency services has
its own emergency operational procedures guide – for example, the Association of
Chief Police Officers’ Emergency Procedures Manual provides detailed guidance
for police forces dealing with major incidents, relating to casualty information
management, dealing with the media, investigation, officers’ welfare and liaison
with other agencies. The fire service has a similar volume, prepared by the Chief
and Assistant Fire Officers Association, Major Incident Procedures Manual; and
the Regional Ambulance Officers Group has the Ambulance Service Operational
Arrangements, Civil Emergencies. There are also locally devised police force, fire
brigade and ambulance service operational manuals with contingency plans to cope
with emergencies that are particular to the hazard profile of each region. These
guidelines also indicate the command structure that will be employed, standard
response procedures and the roles of particular commanders and support personnel.
The personnel and resources of each emergency service remain under the
command of their senior officers in order to execute their primary duties. Apart
from co-ordination and site control (for example cordons and traffic), the police
have responsibility for dealing with casualty information, protection of life and of
property, and also have to oversee any criminal investigation and to assist in any
formal accident investigation. The fire service are primarily concerned with rescuing
people trapped by fire or wreckage and preventing further escalation of the incident
by extinguishing fires as well as dealing with chemicals and contamination. The ambulance service, in conjunction with medical teams, provides the on-scene medical aid and transportation of injured to hospital. The role and functions of local authorities, volunteers, industrial and commercial organisations, military assistance and central government are also briefly outlined. Special advice is available for those managing large crowds at sports or musical events. All agencies are deemed to be working with a set of common objectives, which include saving life, preventing escalation of the disaster, to relieve suffering, to safeguard the environment and to protect property.

In terms of response to a disaster at a single site, the following advice is given:

The scene immediately after disaster has struck is likely to be confused. To bring some order to this confusion it is important that the emergency services establish control over the immediate area and also build up arrangements for co-ordinating the contributions to the response. Experience has shown that an effective response depends on the timely receipt of accurate and complete information and on sound decisions being made and set in train at the onset.

(ACPO, 1999: 2.9)

It is important for security managers to be aware of the extent to which ‘taking control’ will mean the exclusion of an organisation’s legitimate staff from gaining access. Even after the emergency services have left, permission for re-entry may be required from local authority structural engineers.

It is generally accepted that the first member of the emergency services at the scene should not immediately become involved with rescue but should make a rapid assessment of the disaster and report to that service’s control. Such information as is immediately available should be provided about the nature of the disaster and its location; the number of dead, injured and uninjured; hazards actual and potential; access to the site and possible rendezvous points; and which emergency services are present or required. Additionally, each of the emergency services has its own requirements; for example, in the case of the fire service, the number of appliances and personnel to be needed.

(ACPO, 1999: 2.10)

Arrangements have to be rapidly enacted to establish inner and outer cordons, collection points for survivors and casualties, various rendezvous points, traffic routing, emergency flying restrictions, temporary mortuary, and a media liaison point. The overall command organisation adopted by the emergency services at a major incident is shown diagrammatically in Home Office (1997). Each emergency service establishes its own incident control posts and forward control posts (specially equipped vehicles are sometimes used as incident control centres). These are staffed by incident commanders and the three organisations should attempt to locate their incident control posts in close proximity if possible in order to facilitate liaison.
There are many different command and control systems adopted by the emergency services, although they are all essentially designed for the same purpose, which is to deploy available resources to maximum effect to save lives and to bring an emergency under control. Frequently the differences are more apparent than real, with a variety of terminology employed to label the same roles and operations. Precisely to avoid the confusion that is inevitable when different forces, brigades and services, each with their own incident command systems and operational languages, have to work together at a major incident, the UK Home Office issued general guidelines on incident command based on a framework of command and control structures agreed nationally between the emergency services and the local authorities. The system that has been adopted was developed by the police following a series of inner city disturbances (riots) in England during the 1980s. It is a three-tiered command and control structure, which defines the strategic, tactical and operational management levels of incident command – gold, silver and bronze, respectively.

All three services have some system of ascending management structures, which can be brought into operation in accordance with the ascending needs of an incident. For the fire service, the need for a complementary level of management at the response site is an operational necessity. For the police and to some extent the ambulance service this is not so fundamental. For really large incidents, the police need a level of command away from the scene where strategic management decisions about the area around the incident can be taken.

Make short notes on the following:

- Why are the emergency services important to organisational contingency planners?
- How do commercial organisations and the emergency services contrast?

Suggested further reading:

5 Why organisations fail despite good risk planning

1 The contribution of risk theory to game design 23
2 Systems theory 23
3 The Turner model of organisational failure 24
4 Perrow’s normal accident 26
1 The contribution of risk theory to game design

There are a number of traditional indicators of an organisation’s performance and effectiveness in its field of operation. For example, profitability, efficiency, market share, innovation, staff or customer loyalty, quality of product/service and share price are criteria frequently used to evaluate effective operational management.

Risk is an omnipresent threat and highly resistant to systematic and formal checking procedures. While there is much that can be done to ameliorate or control certain risks, the threat remains that the more we do to contain one type of risk the more blind we become to others. One theorist has referred to this process as ‘risk homeostasis’ (Adams, 1995).

The Kobe earthquake in Japan and terrorist bomb outrages against London highlight the diverse nature of risk and the level of media interest. Risks posed by criminal fraud, strategic systems failure, extreme weather and the effect of those with a grievance against the organisation can be equally catastrophic in effect, and all should also be taken seriously as a threat to strategic viability.

Organisations are under increasing pressure to improve their response to these types of crisis situation. However, this poses a number of problems for which the answers are far from clear. Who within the organisation should be responsible for business continuity management (BCM)? How should they be trained? Can such training be evaluated or validated in any effective way? Who can be relied upon to carry out the training?

For most organisations, coping with crisis situations will require a new approach to training and management. When a crisis does occur, it is often of a highly unpredictable nature and may overwhelm key decision-makers by speed of onset and ill-structure. The problem is that our response to these types of incidents is at best dependant on our definition of what is happening. When inter-departmental and even inter-organisational situations occur, the potential for differing or multiple perceptions are increased (Browning and Shetler, 1992).

2 Systems theory

A number of theorists working in the area of crisis management have also highlighted the relevance of a systems theory model for the study and prevention of disasters. They argue that major incidents can be modelled as system failures and further, that these systems comprise both human and technical elements and that a failure in either of these systems can result in a crisis. These theorists also argue that such system failures predominantly represent human or technical failures of operation within organisational systems (Horlick-Jones, 1990).
3 The Turner model of organisational failure

One area of risk theory that might be helpful to exercise designers is systems theory. The systems approach to disaster is not new. In his book *Man-made Disasters*, Turner (1978) proposed a model for how disasters happen in organisations. Turner’s model is based on the understanding that accidents are ultimately latent failures of socio-technical systems.

One key problem is that those members of an organisation with the responsibility for its safe running and operation do not have, in the context of the organisation’s safety culture, any historical reasons to suspect that these problems are in fact latent incubating system faults. When minor problems do become apparent they may be perceived as normal operational difficulties, rather than system faults that violate the integrity of the system itself. The key question for anyone in the organisation brave enough to question a highly structured approach is: what constitutes an extreme situation and how can we recognise the triggers?

Turner (1978) proposed that failures of socio-technical systems occur after a period of incubation has taken place. In other words, the relationship between the social and technical features of a system may incubate together over a period of time producing an environment where an accident can be triggered by some small precipitating event. This, Turner argued, is not apparent from a separate review of technical and social systems of operation in isolation, because this would not reveal the intricate nature of links and mutual reliance of the two systems.

Turner was highly influential in arguing for this approach. He suggests (1978: 3):

> it is better to think of a problem of understanding disasters as a ‘socio-technical’ problem with social organization and technical processes interacting to produce the phenomena to be studied.

Evidence for Turner’s view can be found in the results of many public inquiries, which have argued that the way many disasters are perceived should be reconsidered (Toft and Reynolds, 1994: 3). The conclusions of many contemporary theorists on the subject have suggested similar findings:

> The majority of accidents are, in some measure, attributable to human as well as procedural and technological failure.

(Cox and Tait, 1991: 93)

Turner’s model for understanding socio-technical disasters operates in six stages. The first stage is characterised as some starting point in time, when culturally defined beliefs about the world and codes of practice are brought together to form a system of operation, or an agreed code of practice. This system of operation may be formed at the beginning of an organisation’s life, or subsequently, as the result of some change in the organisation’s function. A fundamental feature of the first stage is potential system failure which, although difficult to perceive, is programmed into the
system’s operation. Also typical for this stage is an independent risk assessment of technical and social systems in isolation, and failure to consider interaction between the two systems. Latent risks, not perceived from this stage, will be transferred to the second stage – incubation.

During the second stage, the system will function, with minor problems and events arising, but these will not be treated seriously as they do not fit in with the organisation’s world-view of a hazard.

The third stage of Turner’s model is the appearance of some precipitating event which, owing to its impact, raises the perceptual awareness of decision-makers involved in stage two. Attempts will be made to respond to the problem within the context of previously held assumptions about the system’s mode of operation. However, the system will fail to respond to these interventions and lead to stage four – a system failure or breakdown with possible catastrophic effects and a violation of the previously held world-view of the system’s decision-makers.

Stage four of the model can be recognised as the onset of disaster. This will typically constitute an ‘ill-structured’ crisis scenario which does not conform to previously held assumptions of safety by members of the organisation. An ill-structured event is a situation of disorder that might arise from the errors and/or failings (for example, poor or inefficient plans, inappropriate application of resources) which go unseen within the pre-crisis incubation period. As Turner puts it:

> Where problems use symbolic or verbal variables, have vague, non-quantifiable goals and lack available routines for their solution, relying instead on ad hoc procedures, a variable disjunction of information is more likely to be found – disasters may be regarded as arising from attempts to handle ill-structured problems, the full implications of which were not realised before the event.

(Turner, 1978: 52)

Stage five of the model is the rescue and salvage operation. The need to recover and re-establish operation of the system will be compromised at this stage by the nature of the ill-structured situation. The element of ill-structure in the handling of the crisis exists when, given the nature of the event, the application of pre-conceived emergency plans or procedures is inappropriate, in conflict, requires cross-agency co-ordination, or even exacerbates the situation. This stage of incident response will therefore require a level of ‘flexibility and improvisation’ that is not characteristic of a normal mode of operation (Turner, 1994).

Stage six, the final stage of Turner’s model, is the learning phase. In this stage, those responsible for the operation of the system come to terms with what has happened. Normally this is carried out through an official ‘inquiry process’, with the aim of both establishing the cause of the problem and making recommendations for future system operations.
Think about an event (that has happened to you or something in the media) and see if you can identify Turner’s six stages in the course of events. It does not have to be a serious incident, just try to relate the model to it.

Two features are central to Turner’s theory. First is the understanding that social and technical systems may be an inclusive system of operation. This means any analysis of system failures should take account of both human and technical types of error, as these are mutually reliant upon each other for the operation or failure of the overall system (Turner, 1978; Toft and Reynolds, 1994). Second is the structural failure of foresight. Theoretically, if it is possible to create systems of operation then it should also be possible to predict the failures. However, one problem with this is the complexity of modern operational systems, which makes identifying the number of permutations of possibilities difficult.

### 4 Perrow’s normal accident

For Charles Perrow, organisational systems are the background precondition to most disasters. For Perrow, it is not the humans but the system itself that is to blame. In his highly influential book *Normal Accidents* he argues that catastrophic accidents continue to occur in industry and are becoming an inevitable feature of advanced technological society (Perrow, 1999). For Perrow, the creation of ‘high risk’ systems are a function of humanity’s technological attempts to control nature. Perrow argues that these systems are likely to fail when two or more components or processes malfunction in some previously unanticipated way. A simple example of such a failure might be a malfunction in a fire alarm, which then causes the sprinkler system to deactivate as well. Perrow suggests two separate features of a system are pertinent in assessing its likelihood of failure: the extent to which there is tight ‘coupling’ and/or ‘interactive complexity’ in the system. In other words, the greater the number of tightly coupled or mutually reliant components there are in a system, the more likely it is that there will be serious failure when two or more of those components fail. Such accidents resulting from tightly coupled or complex interactive system failures Perrow calls ‘normal accidents’.

If interactive complexity and tight coupling – system characteristics – inevitably will produce an accident, I believe we are justified in calling it a normal accident, or system accident. The odd term normal accidents is meant to signal that, given the system characteristics, multiple and unexpected interactions of failures are inevitable. This is an expression of an integral characteristic of the system, not a statement of frequency.

(Perrow, 1999: 5)

Perrow argues that interactive complexity and tight coupling are independent dimensions of a system’s propensity to fail. Two issues appear to be problematic with Perrow’s assertion. First, both of these features may in fact be part of the same
thing (complexity) rather than independent as Perrow implies. The second issue is the practical problem of differentiating between these dimensions in relation to their application to real issues.

Perrow makes a distinction between ‘loose’ and ‘tightly’ coupled systems. Loosely coupled systems may have similar failures but these would not be directly dependent on each other as part of a process. For example, if the failure of the fire alarm coincided with a water supply strike, the result may be very similar to the first example. However, these multiple failures would not be linked in any way, or within the scope of the operators’ abilities to control them.

Perrow also highlights ‘operator error’ as being the most frequently attributed component to most accidents. However, he points out that while the majority of accidents may appear to be caused by operator problems, these need to be considered within a context of operators’ working conditions. Operators may find themselves confronted with multiple technical failures, or inaccurate information systems. In these circumstances, Perrow argues, the fault lies not with the operators, but within the system which they have to operate in. A critical feature of Perrow’s theory is time. The presentation of misinformation to operators during a critical time period can cause a series of system failures to proceed without effective control.

The organisational structure in which system failures take place may also contribute to the overall risk. Tightly coupled systems tend to be rigidly controlled from the centre of operations. Operators in such systems are trained to adhere strictly to prescribed rules and procedures (which ironically have been created for safety reasons) but these can act to limit the amount of innovative and flexible responses available to operators when confronted with risky situations.

Make short notes on the following:

■ How do disasters incubate?

■ Why does complexity make an organisation more likely to fail?

Suggested further reading:


6 Understanding and modelling dangerous events

1 Introduction ..................................................................................31

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1 Introduction

Theorists and practitioners often use a variety of terms to discuss dangerous events. It is argued here that while these terms are frequently used, there is often very little distinction made between them and this may have important implications for the way we train decision-makers to manage risk. When looking at the literature on this subject, one finds a number of inter-changeable terms used by authors to describe a variety of scenarios with a potential for escalation. It is argued here that emergencies, crises and disasters may represent distinctly different types of phenomenon and that this conception may have important implications for both analysis of events and training. This unit will, therefore, consider both the context and practical implications of a distinction in terms.

Understanding different types of event may be helpful for those who have to train key decision-makers. If emergencies, crises and disasters are different phenomena, then it would appear logical that appropriate training may also need to be different. Further, identifying the appropriate people to train within organisations may also need to be re-considered for such distinctive events.

This chapter will initially discuss some of the problems associated with distinguishing between emergency, crisis and disaster. A working definition of these terms will be presented. The definitions are based on the results of research work carried out for a European Union funded project on critical decision-makers. In the final chapter of this unit, debates about the multiple perceptions of reality among key decision-makers and those involved in disasters will be considered, and the implications of a tighter definition of terms are discussed in the context of exercising practice.

2 A plethora of typological terminology

It is argued in this unit that most of the theoretical risk positions found in the academic literature focus on the prevention or minimisation of risk before a crisis materialises, or the analysis of events following tragic disaster. It is, however, much more difficult to find theoretical positions on the issue of crisis management itself. While prevention is a laudable aim, and clearly much of this theoretical work needs to continue, the phenomenon of crisis is still very much a theoretical black box waiting to be opened.

Practical examples of crises are all too familiar: fires and explosions in complex nuclear or chemical plants, accidents in the transportation and storage of hazardous products (or ourselves) and tragic fires that sweep through ever more adventurous building structures. Many social scientists are in general agreement that there is an increase of crisis incidents with a potential for disaster. Although theorists may differ in their explanations for this increase, the focus of their interest tends to be on the reasons why disasters occur and post-incident management.

The German social theorist Ulrich Beck argues that this represents a paradigm shift in the way human social relations are evolving from a class to a 'risk society' (Beck, 1992). Another theorist, Charles Perrow, suggests that the nature of technological
systems is becoming too complex or ‘tightly coupled’ and it is for this reason that many potentially hazardous activities may be too complex for acceptable risk management (Perrow, 1999).

However, a number of theorists have argued that more attention needs to be given to understanding and managing situations of crisis. For Turner, it is the mismatch in the relationship between social or human and technological systems that causes the dangerous situations of ‘ill-structure which can lead to disaster’ (Turner, 1978). The French sociologist, Lagadec, has also raised the issue of crisis as an increasingly dangerous phenomenon:

Major crises – from Challenger, Bhopal, Tylenol or Chernobyl to Exxon Valdez and Braer – are no longer exceptional events. Indeed the risk of crisis is even becoming structural as large networks become more complex, more vulnerable and more independent... crises continue to become more frequent and destabilising.

(Lagadec, 1993: 45)

However, as both theorists and practitioners we are faced with a dangerous plethora of events and terminology. The words major incident, emergency, crisis, disaster, accident, catastrophe and abomination are all examples of terms used to describe events that rupture our social world and devastate our physical one. What these terms mean and how we respond to such events is problematic. However, without a model to understand the phenomena that we are describing, event response and theorising is made more difficult.

Historically, disasters were popularly conceived as ‘freak’ events, ‘acts of God’ or ‘abominations’ (Douglas, 1970). In contrast, more recent scientific approaches to the study of disasters would appear to suggest that all disasters should have causal agents and, further, that these agents may be identifiable and therefore prevented. The notion of causal agents also suggests that blame can be identified and this issue has become a particularly important one. For public inquiries, an exhaustive amount of time and expense may be focused on establishing causality and responsibility (Toft and Reynolds, 1994: 199).

A system for ordering such phenomena would enable academics to make comparisons between events in a number of ways. However, how one conceptualises the types of phenomena described as emergency, crisis and disaster and how this material should be categorised, poses a number of difficult problems.

First, the apparent uniqueness of event aetiology and manifestation suggests that a general rule of categorisation may be difficult to stipulate in advance. The almost infinite ability for technological advancement in the context of ever more complex social structures continues to pose many new forms of scenario for emergency decision-makers to deal with. The evidence for this alarming trend is displayed in the form of new and difficult to deal with socio-technical incidents, which have potential to rapidly transform into tragic disasters. What may often begin as an apparently
small or routine emergency may quite dramatically turn into a major disaster, because it was impossible to envisage how the event would (or could) manifest. This apparent uniqueness, then, is caused by difficulties in predicting the timing, nature and social and geographic context.

Obtaining reliable data about incidents, in other words learning through the experience of significant others, is often complicated by a number of conflicting accounts of events. Disagreements between those involved in responding to major incidents are notoriously difficult to reconcile and have become the subject of much media attention during public inquiries.

Such events are difficult to categorise. There is a considerable body of literature devoted to dealing with emergency, crisis and disaster management. Rarely, however, are these concepts either defined adequately or even distinguished from each other (Borodzicz and Pidgeon, 1996; Borodzicz, 1996).

Major incidents will place different demands on different agencies and at different times. Hence, what is defined as a disaster for one agency, may in contrast still be an ongoing crisis or emergency for another. For example, in responding to an air-crash, once survivors have been removed, the police, coroner and civil aviation authorities will be involved in disaster recovery. However, for social services, this situation would constitute an ongoing crisis in the management of resources for survivors and the community. Such illustrations suggest that the nature of the liaison occurring between social workers, the health authority, emergency planning officers and those voluntary agencies that deal with the human tragedy following a major event, are dynamic and in a state of mutual construction.

Crisis occur in a number of different contexts, which may make comparisons extremely difficult. For example, can we model a business, political or health crisis in the same way as one involving the emergency services? Clearly, establishing comparable levels of decision-making between highly structured emergency response organisations poses a problem, particularly if the hierarchies are different. However, to make this type of comparison among commercial and political organisations may suggest that an overall theoretical model of crisis is somewhat elusive.

A number of attempts have been made to model the phenomena we know as disasters, but this has proved difficult due to the amorphous nature of disasters and the varied and unpredictable contexts in which they occur. Understanding the perceptions of disasters for those that respond to them does appear to be important, at least in terms of the quality and scope of response.
3 Modelling by type

One way we might choose to model emergency, crisis and disaster is by type. For example, we could categorise such events by the type of activity affected. Therefore, incidents involving air travel might be construed as different from shipping ones. Floods and earthquakes might receive a similar distinction as would fires and explosions. Another popular distinction by type is often made between so-called ‘natural’ and ‘man-made’ disasters.

The problem with a classification system based on type is that many contemporary incidents may easily fit into more than one category. This is because the effects of many catastrophic events can be highly complex and causality may not be easily established. For example, if we were to take all shipping accidents and attempt to compare them, we would expect an exclusive category to contain incidents that all exhibit certain similarities or patterns of events, at least in terms of causality and effect. The problem here is the plethora of different types of incident that can be found in the would-be category. For example, not all shipping accidents cause loss of life, some may be responsible for environmental damage through the spilling of crude oil or other chemicals, others may be caused by fire (which may itself constitute another type of incident altogether).

4 Emergencies, crises and disasters

Terminology is problematic. The terms emergency, crisis and disaster are often used by theorists, policy-makers and practitioners to describe some quite different situations. In addition a number of other terms, for example mass emergency, major incident or catastrophe, can also be found in the literature. This point is commented on by Quarantelli, in the introduction to a recent debate entitled What is a Disaster?:

So a main reason we need clarification is because otherwise scholars who think they are communicating with one another are really talking of somewhat different phenomena.

(Quarantelli, 1995: 224)

It is suggested that a failure to distinguish between emergencies, crises and disasters also raises questions about the validity of any synthesis between theory and practice. For this reason a working definition of the terms will be given below. In a wider context, these terms are likely to remain problematic; therefore, it is argued that further work towards the definition of these terms is both a desirable and necessary feature of future research in this subject.

4.1 Emergencies

Emergencies can be defined as situations requiring a rapid and highly structured response where the risks for critical decision-makers can, to a relative degree, be defined. A key feature of emergencies, as understood here, is that for those who
manage such situations, conceptualisation (or mental modelling) both appears and is sufficient to identify an appropriate and effective strategy.

In organisational terms, an emergency could represent a situation of danger that can be responded to using the normal contingencies and procedures laid down by management. For example, in the case of a fire or terrorist threat, buildings would be evacuated and staff would be moved to a pre-designated safe area.

Much of the existing academic literature on emergency management has been criticised for focusing too closely on the role of principal emergency response agencies (police, fire and ambulance) in the context of a highly structured response to incidents (Drabek, 1986; Dynes, 1994). It is argued here that if emergencies constitute highly structured situations, then much of this type of training may in fact be appropriate. However, for managing ill-structured scenarios, highly structured training may be more questionable.

4.2 Crises

Crises could also be defined as situations requiring a rapid response (for this reason they are all too easily misconceived as emergencies), although in contrast, the risks for critical decision-makers are difficult to define owing to ill-structure. It is typical for such situations that the effect of a response either is, or appears to be, unclear.

A working example here might be the same as given above for an emergency, but this time there are some added complicating factors that make a structured response more difficult. These factors could be numerous; for example, the fire mentioned above might have affected a vital manufacturing plant that produces a valuable component which is required for all of its products, or the building might contain a dangerous chemical (or mixture of chemicals) which may cause an explosion, or the fire might have been deliberately started by a deranged person who is threatening to kill the occupants or rescuers, as happened with a religious cult at Wako in America. A crisis, therefore, may not be immediately apparent to those responsible for managing the situation. Crises may also cause disasters and continue to occur after the onset of a disaster.

The concept ‘crisis’ has not been very well researched. However, there is now a debate emerging among some contemporary theorists about response to and management of crisis situations. A growing number of academic journals, conferences, seminars and workshops on the subject of response and management of crisis appear to support this assertion. The fact that many of these have emerged only recently may be an indication of the urgent need for further research on the concept of crisis.

Turner’s systems work was helpful here in providing a theoretical context within which distinctions could be made. For example, crisis could be argued to correspond to stage four of Turner’s model for understanding socio-technical disasters, although the outcome need not progress to disaster as was suggested by the model. By
concentrating on the positive features of response, much can be learnt from successfully managed incidents and this, it is argued, presents an opportunity for isomorphic learning as outlined by Toft and Reynolds.

A number of theorists have acknowledged crises as distinct phenomena: ‘There are a number of distinctive characteristics of a crisis’ (Heinzen, 1996: 16). For Heinzen, there are four key characteristics. First, the crisis constitutes a series of events rather than the management of a single entity. Second, the crisis may be caused by a disaster (although no definition for disaster is provided by Heinzen). Heinzen does, however, acknowledge that the ‘disaster’ may not necessarily be a physical one. Third, the crisis has a diffuse origin making it difficult for decision-makers to gain a macro view of events. Fourth, it is unclear what action needs to be taken (Heinzen, 1996: 16–17).

Many of Heinzen’s points are congruent with the definitions given here and those offered by contemporary theorists. Crisis situations do pose a special problem, because despite giving the appearance of an emergency to decision-makers, there are few signals to suggest a more serious underlying threat. Lagadec makes this point:

What is missing is the characteristic feature of an emergency: a clear trace that would justify triggering the warning procedures and mobilising resources.

(Lagadec, 1995)

Lagadec has also argued that more training should be geared towards crisis management. One reason he gives to support this is the value of training to bring about a crisis among decision-makers. Lagadec comments on the reluctance of private industry, governments and non-governmental organisations to consider crisis decision-making as evidence for this (Lagadec, 1993). This view is also congruent with the Dutch theorist Uriel Rosenthal’s definition of crisis as:

a serious threat to the basic structures or the fundamental values and norms of a social system...

(Rosenthal, 1986)

For both Lagadec and Rosenthal, the crisis can be found to operate at a social and cultural level by challenging the status quo. The crisis in this context could be perceived to be an affront to known knowledge and socially accepted notions of expertise. In contrast, some theorists have attempted to define crisis by distinguishing it from a disaster. The central argument offered here is that crises are ill-structured situations both in terms of technical, social and cultural contexts. The greater the degree of ill-structure, then the more difficult the incident becomes for recognition and management, more agencies become involved and hence more social agendas become juxtaposed. It is this spiral that can lead to disaster.
4.3 Disasters

Disasters, in contrast, would be defined as a cultural construction of reality. A disaster is distinct from both an emergency and a crisis only in that physically it represents the product of the former. Disasters, then, are the irreversible and typically overwhelming result of ill-handling of emergencies and crises. Fundamental to the understanding given here is that specific socio-technical systems affected by disasters will have been indelibly challenged, possibly leading to inquiries at the highest social and cultural levels (the official public inquiry is an example of this). This can be deemed similar to the definition of disaster given by Turner (1978) as an overturning of the cultural norms for dealing with hazards.

Responding to what is described as disaster may typically involve dealing with a number of smaller ongoing crises and emergencies. Disaster is perhaps the most difficult phenomenon to define due to its apparent amorphous nature. In this case using the analogy given for emergency and crisis, the disaster would have caused destruction and/or serious loss of life. Response staff, then, would be dealing with the failure to manage emergency and crisis – for example, a house has burned to the ground.

Another method for defining disaster in the literature is as an overwhelming situation, which could be in terms of human costs (lives lost) and financial loss or damage to social structures. This can also be expressed as insufficient resources to deal with the situation; for a commercial organisation this might mean bankruptcy. In this context, the disaster can be seen as ‘social vulnerability’ (Gilbert, 1995) or a ‘lack of capacity’ (Dombrowsky, 1995). Event quality also suggests a similar method for conceptualising disaster. In this context it is again event typology, or severity, that can be used to gauge the disaster (Dombrowsky, 1995; Gilbert, 1995).

Of concern is that many theorists still freely conflate the terms emergency, crisis and disaster in their work. For example, while Quarantelli attempts to define disaster and stresses the importance of doing this, he then goes on to refer to the same situation as a crisis (Quarantelli, 1995).

A different explanation, in direct contrast with Heinzen and Goemans’, is offered by Dombrowsky’s assertion that ‘Disasters do not cause effects. The effects are what we call a disaster’ (Dombrowsky, 1995: 242).

It is perhaps easier to distinguish between emergencies and disasters in that the former at least presents a more structured and less overwhelming decision-making task. However, it is argued that problems of definition highlighted here represent a deeper form of misunderstanding. If one were to take a neo-relativist position, a disaster is nothing more than the social construction of symptoms from emergency and crisis. In this respect disaster becomes reified as a cultural ‘myth’ given the status of physical phenomenon.
4.4 Exercising

An understanding of what is meant by emergency, crisis and disaster is argued to be of critical importance in a training context. Specialist training for a crisis is particularly difficult and can be very expensive. The rewards of such training may only become apparent if and when a real incident occurs.

Multi-service response exercises (or simulations) are increasingly being recognised as being of value and importance for the emergency services. This is highlighted in many of the official reports produced by both the government and the emergency services themselves (HSE, 1991; Home Office, 1992a, b, c; London Emergency Service Liaison Panel, 1992). Simulations and training exercises offer a proactive means to understand and manage crises before they happen. Simulated training exercises can also be used to train organisations that need to work together in order to deal with crisis.

Revisit the simulation exercises on the Home Office website at www.homeoffice.gov.uk/security. Consider any differences that they stipulate between emergencies, crises and disasters.

- Are they different from those mentioned in this unit?
- Is there an overlap between definitions?
- Do they think that differentiating between event types is important?

‘Clarity of goals’ is an essential feature of good simulation design. Understanding the difference between emergency, crisis and disaster, it is argued here, will facilitate the development of a more focused and meaningful training programme for key decision-makers. Developing an awareness of these terms among those being trained may also encourage a more realistic response.

The problem is that our response to any crisis incident is at best dependent upon our definition of what is happening. Disagreements between experts about the cause and remedies of these tragedies can frequently be heard in public and governmental inquiries. It has been argued that training for a crisis can itself create a crisis for the response organisations themselves, as suggested by Lagadec. If Lagadec’s assertion is correct, then the training crisis created is for many organisations a very necessary one.

5 Conclusion

How we conceive dangerous events will remain problematic. In this part of the unit we have discussed a number of ways that this could be done. Typology, severity and systemic modelling provide a variety of apparently pragmatic methodologies. While these ways of managing the data can provide a pragmatic approach to classifying
data, it is questionable whether these criteria will assist in understanding and managing the aetiology of such events.

Using emergency, crisis and disaster as conceptual categories will not in itself make the problem go away. The definitions we have offered for these terms are themselves problematic, although they do at least provide a way in which theorists might consider the requirements to facilitate management and response.

Make short notes on the following:

■ Why is it important to distinguish between dangerous events?
■ What is different about responding to crisis events?

Suggested further reading:

7 Training organisations for crises

1 Designing training exercises 43
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   1.2 Feedback and debriefing 44
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   1.4 Exercising 45

2 Simulation validation 47

3 Conclusion: bringing about change 48
This chapter will look at some of the issues that relate to the management of difficult scenarios in relation to simulation training for key decision-makers in a BCM context. Exercises will then be considered from four perspectives: focus, definition, learning and validation. This chapter will also consider the desirability and potential for research and development of BCM within a simulations-for-learning context.

1 Designing training exercises

1.1 Tactical decision games

A tactical decision game (TDG) is a low-fidelity facilitated simulation, based on scenarios ranging in complexity and technicalities, of incidents that may occur during emergency response. They are designed to exercise relevant non-technical skills, primarily decision-making. Participants in the TDG, usually numbering between four and ten individuals, are presented with brief written details of a scenario by a facilitator and take on certain assigned roles. The scenario, in which information can be misleading, ambiguous or missing, culminates in a dilemma that must be resolved. Participants must decide upon actions to be taken to manage the situation. As only a limited amount of time (for example two to five minutes) is available for decisions to be made, they must be made quickly while under some degree of pressure. All participants generate their own solution to the dilemma and differences and similarities between solutions are discussed. After the initial scenario presentation, and during the discussion, the facilitator can also introduce additional information or contingencies, in an incremental manner, that increases the complexity and uncertainty of the situation.

The objectives of TDGs can be summarised as follows:

- to exercise and practise decision-making skills and illustrate key operating principles;
- to boost expertise in decision-making and judgment;
- to assist participants to develop a shared understanding and recognition of possible problems;
- to build up a repertoire of patterns that can be quickly recognised and acted upon, particularly during emergency situations; and
- to practise non-technical skills such as decision-making, communication, situation awareness, stress management and teamwork.

A prevailing principle of TDGs, however, is for all participants to develop a shared understanding and recognition of possible problems for emergency management.

For participants to learn from their experience during the TDG scenario, it is essential that they analyse and evaluate what happened, going beyond simply naming the
strong and weak points of their own performance. Powerful insight can be gained by analysing why decisions were made or actions taken, including factors that either enabled or hindered their success. The facilitator has at his/her disposal learning tools, developed by Pliske, McCloskey and Klein (1998) to fully explore the decision-making and other non-technical skills that emerged during the session. These learning tools consist of a technique for identifying decision requirements (decision requirements exercise), a method for reflecting on the decision-making in training events (cognitive critique), a method for mentally simulating plans (post-mortem and/or re-mortem exercise), and a method for leaders to obtain feedback on the expression of intent (commander’s intent).

1.2 Feedback and debriefing

An integral and vital part of any training intervention, including training for incident command and emergency management, is that of augmented and constructive feedback. However, feedback presented at the end of an emergency exercise tends to focus on the outcome rather than the process of performance. Although feedback presented throughout an exercise can be effective, care must be taken to ensure that it does not interrupt or interfere with performance. Nevertheless, when errors are pointed out, the trainee should be able to infer the lesson to be learned from the error (Cannon-Bowers and Salas, 1998). However, feedback does not necessarily lead to acquisition of knowledge, and the trainee must be psychologically open to, receptive of, and reflective about the feedback message in order to alter performance (McLennan, Pavlou and Klein, 1999).

A relatively novel system to provide feedback on fireground command performance during an incident is that of head-mounted video. McLennan et al. (1999) have developed an approach to training based on video footage, giving the field of view from the incident commander’s helmet, during an emergency exercise. Video-cued replay is used for debriefing and feedback purposes. This provides a powerful cue for commanders to recall the basis of their incident control decision-making, identifying uncertainties, self-questioning and self-doubt. This in turn was considered as a positive method by which to receive feedback suggestions about improvements in performance.

1.3 Selecting the crisis management team

The selection of appropriate personnel for crisis management exercises is essential. Exercises can be used to select the types of people most suited to business continuity planning. Most managers like to think that they can manage their departments better than anyone else, particularly in a crisis situation. However, this is an unfortunate fallacy. Some managers are indeed naturally good at working on crisis committees and generally have the flexible range of personal skills necessary to facilitate crisis management. Others can also be trained to do this. Unfortunately, for some managers, it may be preferable that they concentrate on activities where they are already proven to be operationally effective.
Another issue with staff selection for BCM training is the level of seniority in the organisation. The almost natural assumption is that because the matters in hand are strategic, the staff who are appointed to manage should carry rank. In the author’s research into emergency service training, this assumption was found to be highly controversial for crisis management. Typically the emergency services were found to concentrate much of their management training at the top, with structured operational training at the bottom! Most organisations when confronted with a crisis usually find that it is junior staff who have to initially respond; by the time senior managers become involved, it is often too late for crisis management and the incident will have become a disaster. It is necessary to train as wide a variety of staff in crisis management as possible. Readiness therefore means demonstrating a capability at all times and at all levels within the organisation. It is also worth noting at this point that most holistic staff development programmes neglect this aspect of personnel training.

Screening and filtering processes can at best only be crude ways of selecting people for such skills. There are severe problems associated with identifying desired personality traits, and even more severe problems finding people that match them. The discipline of occupational psychology is littered with attempts to do just this. The reasons why some staff might prove unsuitable for crisis management are complex, although three types of skill can be identified: ability to declare the nature of the incident, to communicate and to negotiate (Borodzicz, 1997).

1.4 Exercising

Most exercises typically lack focus. What is the purpose of training?

One of the key issues that exercise designers need to identify prior to even beginning to script a business continuity exercise is the process of identifying management systems and where they are vital to the continuity of the organisation. This might seem a straightforward task, although the skills of doing this are hard to define. Most organisational systems have evolved over a period of time, and would typically contain a number of subsystems that have been added in order to enable vital processes to withstand a variety of predetermined operational hazards. The organisation may have been subjected to a quite detailed quantified risk assessment procedure for this very purpose.

The role of the exercise designer in a BCM context is to look for ways that the system might operate in a context unlikely to be envisaged by someone who knows it intimately from the inside. There is something sinister about the mental process required for this task, which could be likened to that of a clever bank robber or terrorist planning their next major job. The bank robber will know that the bank has gone to some considerable effort to make the cash secure – impressive safes, time-locks, security guards and so on would form obvious defences. The bank robber has to devise a scenario that involves either by-passing these defences or putting them
out of action altogether. This could be by stealing the money through a complicated computer fraud, or more likely by using someone on the inside to help them fool the bank into thinking that the systems are operating when they have in fact been shut down for the duration of the robbery. Similarly, the terrorist with political demands knows that the emergency services will respond in a particular way to bomb threats; they might therefore frustrate the response staff by placing strategically placed secondary devices, for example by evacuation routes.

Exercise designers who want to test an organisation’s response to crises need to bring about a crisis of confidence for those that manage the vital systems. They need not only an understanding of the way the organisation perceives and manages its known hazards, they also need an ability to deconstruct the system in a way that might prove culturally difficult to those who work within the organisation.

In order to focus on an exercise, we would need to be able to define more closely the nature of the risk that is being simulated. Exercise planners should be aware of, and make distinctions between event quality as a guide for planning teams to think about in scenario design. For example, players who thought they were dealing with an operational emergency but were actually confronted with a crisis scenario based on strategic viability may have a negative exercise experience, despite following their own procedures rigidly and efficiently. The problem, however, may lie in imposing the response procedures too rigidly, failing to be flexible and not considering the cross-agency nature of the overall response. There is a congruence between what is suggested here and the work of a number of authors, for example Turner’s (1994) arguments for greater flexibility in response.

In this case a failure to deal with the scenario might be blamed on a poor exercise design or the actions of the other players and/or agencies involved. Learning in this context could become inappropriate, as false assumptions about appropriate response become internalised. This could also be compared to the concept of negative learning as highlighted by Rolfe (1992). It is argued that discussing event quality with players as part of the debrief process may bring about a more meaningful experience.

Why do players need to learn? If it is not clear to players why they are involved in an exercise, then players are likely to invent their own reasons or simply go through the social motions of involvement. Players need to understand the relevance of their
participation if this is to be a significant learning experience in crisis response. A context of rigid command structures may serve the needs of simulated emergency response, but it may be a ball and chain for decision-makers in crisis. Players need to establish the significance of declaration, communication and negotiation and this can be facilitated by playing roles different to the normal domain of expertise. It is argued that players need to attend crisis simulations not to re-establish what they already know, but to learn about something new. In other words how to manage other people’s crises as well as their own.

Physical participation in an exercise is not the same thing as active learning. The popular saying, ‘you can take a horse to water but you cannot make it drink’ could apply here. There is a growing literature on ‘organisational’ and ‘safety culture’, which suggests employees respond to various hazardous stimuli in accordance with informal rules as sanctioned by the organisation. It is suggested that, for employees, simulation training is also subject to the same constraints of organisational or safety culture. Further, sustained simulation training for a small group of employees within an organisation may result in bringing about a ‘simulation culture’.

To avoid this, crisis exercises need be designed so players are unable to cope with the scenario presented unless established procedures are radically altered or deviated from. The players themselves should be highly involved in bringing this about on a mutual basis. This should be built in to the design, briefing and debriefing of crisis exercises.

This argument, it is acknowledged, gives key decision-makers and trainers in organisations a difficult legal dilemma. Failure to respond in an orthodox manner may invite considerable controversy regarding the ‘reasonableness’ with which agencies have acted, particularly if there is much litigation. Conversely, if a successful outcome is brought about, unorthodox procedures may bring about considerable popular praise. The increasing popularity of television programmes based around this theme of managing difficult incidents highlights this point. A useful by-product from this media attention is a number of new scenario types for use in crisis simulations.

2 Simulation validation

Simulation training for crises poses a tacit acceptance that the unthinkable may happen. This acceptance can facilitate a shift in attitude among responsible decision-makers that training for crisis scenarios will require a shift in thinking away from highly structured contingencies for emergencies and predictable disaster plans. Crisis in a training context offers the opportunity to deal with something new, a challenge to existing operating procedures and understandings. The crisis simulation, also offers those who design and implement them a similar opportunity.

It is suggested there are a number of ways in which risk simulations could be validated. These would need to take account of simulation theory from other contexts and also provide a greater awareness of the plurality of risk. One way we might wish to validate the effectiveness of simulations is in terms of a value-for-money
model. For example, we might wish to put a notional cost on a human life, then calculate the number of lives potentially saved by a simulation exercise. This would at least provide a direct cost/benefit ratio (a measured ‘transfer of training’) similar to the method used for validating aircraft simulators for pilot training (Rolfe, 1992).

It is also suggested that, because of the number of variables involved in business continuity management, a cost/benefit analysis would be simply too crude. There are too many variables to measure precisely whether a positive or indeed a negative transfer of training has come about from exercise implementation. Validation is therefore required at some qualitative level.

Repeating the exercise after an appropriate period of time might be more a test of participants’ memories than ability to manage, but it would provide an opportunity for learning on the basis of reflection and hindsight. Such an approach can also be appropriate to highly structured operator training tasks. There would still be a problem in collecting enough reliable qualitative data about decision-makers that undertake the training, and comparing this with a control group after a time period.

The debrief session can be fundamentally important in validation. The debrief enables players to contrast outcomes with a number of potential response strategies. Lagadec suggests that the problems found in the debriefing process may in fact illustrate symptoms of a serious organisational shortcoming:

... the very difficulty encountered in launching this debriefing process is highly revealing: it is a clear sign that the organisation is still very poorly prepared to face crises, and consequently that it is highly vulnerable.

(Lagadec, 1995)

3 Conclusion: bringing about change

Bringing about change in BCM suggests a number of options: self-regulation, government regulation, training exercises and education. Each of these have a part to play.

The reluctance of organisations several years ago to co-operate on the millennium computer bug issue was an example of the scale of the problem. For most commercial organisations, the knowledge of another organisation’s problem represents a business opportunity to be capitalised on. This is often perceived as a good reason for keeping your own problems to yourself – an approach not dissimilar to putting one’s head in the sand!

Despite some of the political interest mentioned earlier, there is an almost total lack of consensus between academics and practitioners when it comes to choosing experts to run BCM games. For consultants this is a good situation, as anyone can call themselves an expert. There is probably more literature available on hiring a clairvoyant than finding someone knowledgeable on business continuity planning.
This issue of expertise and competence in relation to consultative practice in BCM has as yet to be tested in law. Clearly one would not normally call a plumber to build a garden rockery. It is therefore curious that something as vital as the security and viability of a major organisation is often placed in the hands of those who have training that is either questionable or non-existent. While being an ex-policeman does not disqualify someone from the skills of BCM, it is not necessarily a qualification in its own right.

Despite the importance of contingency planning, there are a number of dilemmas posed. Implementation requires the use of specialist skills, but experts do not agree about what these are and how training should take place. Specialist training is, in any case, often either time consuming, expensive or both. The rewards of training are often not overtly visible on the balance sheet or profit and loss account; in contrast, failure to train is highly visible once the organisation has been exposed to crisis. A lack of preparedness can cost damage to property and staff, leading to litigation and even bankruptcy. Insurance in these types of contexts is usually unavailable (in fact most insurance companies no longer actively sell insurance for disaster but ‘risk management services’). Legislation is likely to make organisations not only liable for their actions, but also inaction.

For the consumer, business continuity planning represents an overhead of bewildering proportions. Once you bring an outsider into your organisation and ask them to envisage your own private hell, are you not technically negligent if you do not act in accordance with their often expensive recommendation? Are you not damned if you do, but also damned if you do not?

In this chapter it is argued that education has a vital role to play in BCPs. If the primary form of training is through simulations and games, then the scope for knowledge transference is there. Education has a role to perform in the design, implementation and evaluation of simulations for business continuity purposes. There is a need for properly funded research in order to establish principles of best practice.

The ultimate test of any crisis simulation will be the extent to which decision-making of individuals and collective groups will be influenced so as to behave differently. There is no scientific test that can accurately measure the extent to which conceptual or behavioural change will in fact take place among groups following qualitative simulation training. However, it is argued here that if crisis simulation praxis and validation are to be improved, then a pragmatic context must be developed in which the theoretical findings of BCM training can be subjected to rigorous research and development.
Make short notes on the following:

- Who within the organisation should be trained?
- Why is scenario planning important for simulation and gaming?
- Why is debriefing important?

Suggested further reading:

The main publication on simulations and gaming is the *International Journal of Simulation and Gaming*, published quarterly by Sage.
## 8 Decision-making

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1 Introduction

The decision-making skill of the crisis team appears to be one of the most essential components of effective command and control in emergency response.

Experience has shown that an effective response depends on timely receipt of accurate and complete information and on sound decisions and appropriate actions set in train at the outset.

(Home Office, 1994: 6)

Decisions are coming under increasing scrutiny following major incidents. As a result of a number of high-profile failures in command decision-making, both military and industrial psychologists (Flin, 1996; McCann and Pigeau, 2000) have begun to examine the core competencies required for effective incident command.

This chapter presents a selective review of current psychological research relating to incident command decision-making. It opens with a discussion of the key components of incident command, especially at the operational and tactical levels. This is followed by an overview of recent advances in decision research, with a discussion of decision strategies, situation awareness, and the impact of stress. It ends with a look at methods for training incident commanders, especially low-fidelity techniques for improving command decision-making.

2 Command skills

Increasingly, command and control skills are being assessed and evaluated on the basis of standards of competence (Flin, 1996: 100). The relevant skills for command generally comprise decision-making, problem-solving, leadership, situation assessment, planning, communicating, monitoring, delegating, prioritising (Flin, 1996; Pigeau and McCann, 2000). Sarna (2001: 58) argues that incident command is a distinct discipline with its own set of specific competencies, which depend on specific conditions of performance and are as follows:

- Handling multiple, demanding problems concurrently under conditions of high stress and emotion, urgency, confusion and uncertainty.

- Ranking different, competing tasks in order of importance in compressed time frames with limited resources.

- Knowing and executing predefined options for handling certain types of crises and their impacts.

- Formulating new courses of action to resolve or mitigate novel crises and their impacts.
Coordinating the activities of numerous specialists, each having to some extent conflicting decision premises, mental models, and views about needed courses of actions, and a vested interest in seeing their model implemented.

Conducting accurate situation assessments and ordering actions that will result in major social and economic dislocations.

Making high-risk decisions in life and death outcomes.

Activating an appropriate level of organisational response to handle the crisis, yet maintain normal operations at the highest level feasible.

Coordinating actions and negotiating agreements across organisations and disciplinary boundaries.

Managing personal stress levels to prevent or minimise performance degradation.

As can be seen clearly from the above, one of the core skills is decision-making, under conditions of risk, time pressure and a dynamic environment. Until recently, very little scientific research had been carried out into the skills required to make decisions in hazardous work settings. The traditional decision-making literature from management, statistics, economics and operations research is very extensive but it offers little relevance to the emergency manager, as it tends to be derived from studies of specified problems (often artificial in nature), inexperienced decision-makers and low-stake payoffs. Moreover, it is rarely concerned with ambiguous dynamic situations, life threatening odds, or high time pressure, all important features of a serious emergency or a major incident. If we turn to the traditional psychological literature on decision-making it tells us almost nothing of emergency decision-makers, as so much of it is based on students performing trivial tasks in laboratories. The management decision research is concerned with individuals making strategic decisions where they have several hours or days to think about the options, carefully evaluating each one in turn against their business objectives using decision analysis methods.

These provide a range of explanatory frameworks, which may have value for managers’ decision-making where they are encouraged to emulate a normative (or in mathematical terms, ideal) strategy of decision-making that focuses on comparing options. In its simplest form, this incorporates the following four stages:

- identifying the problem;
- generating a set of options for solving the problem/choice alternatives;
- evaluating these options concurrently using one of a number of strategies, such as weighting and comparing the relevant features of the options; and
- choosing and implementing the preferred option.

In theory, this type of approach should allow you to make the ‘best’ decision, provided that you have the mental energy, unlimited time and all the relevant
information to carry out the decision analysis. This is typically the method of analytical decision-making in which managers are trained. However, we know from our everyday experience that when we are in a familiar situation, we take many decisions almost automatically on the basis of our experience. We do not consciously generate and evaluate options, we simply know the right thing to do. This may be called intuition or ‘gut feel’ (Claxton, 1997) but in fact to achieve these judgements some very sophisticated mental activity is taking place. So we can think about different types of decision-making, such as the slower but more analytic comparison of options and the faster, intuitive judgement. These and other methods of selecting a course of action are discussed in more detail below.

2.1 Naturalistic decision-making (NDM)

In the last decade there has been a growing interest by applied psychologists into naturalistic decision-making (NDM), which takes place in complex real-world settings. These researchers typically study experts’ decision-making in dynamic environments such as flight decks, military operations, firegrounds, hospital trauma centres/intensive care units and high hazard industries, for example nuclear plant control rooms. This NDM research has enormous significance for the understanding of how commanders and their teams make decisions at the scene of an incident, as it offers descriptions of what expert commanders actually do when taking operational decisions in emergencies. NDM has been defined as:

the way people use their experience to make decisions in field settings [and] how experienced people, working as individuals or groups in dynamic, uncertain, and often fast-paced environments, identify and assess their situation, make decisions and take actions whose consequences are meaningful to them and the larger organisation in which they operate.

(Zsambok and Klein, 1997: 4–5)

Ten factors characterise decision-making in naturalistic settings:

- ill-defined goals and ill-structured tasks;
- uncertainty, ambiguity and missing data;
- shifting and competing goals;
- dynamic and continually changing conditions;
- action feedback loops (real-time reactions to changed conditions);
- time stress;
- high stakes;
- multiple players (team factors);
- organisational goals and norms; and
- experienced decision-makers.

In typical NDM environments (for example a crisis control room), information comes from many sources, is often incomplete, can be ambiguous, and is prone to rapid change. In a crisis, the team are likely to be working in a high-stress, high-risk, time-pressured setting and the business sectors affected by the incident (including their
own), may be dependent on their decisions. How then do they decide the correct courses of action?

In the view of the NDM researchers (see Flin, Salas, Strub and Martin, 1997; Klein, 1998; Zsambok and Klein, 1997), traditional, normative models of decision-making, which focus on the process of option generation and simultaneous evaluation to choose a course of action, do not frequently apply in NDM settings. There are a number of slightly different theoretical approaches within the NDM fraternity to studying decision-making, but they all share an interest in dynamic high-pressure domains where experts are aiming for satisfactory rather than optimal decisions due to time and risk constraints. NDM has grown in appeal as a decision-making approach due to its relevance to decision-making in the real world, though it is not without its critics.

2.2 Situation assessment and decision-making style

NDM models contain fundamental differences in their approach to the decision-making process, as they tend to have been developed in the context of the domain in which the study has been conducted. For example, Orasanu and Fischer’s (1997) model concerns pilot decision-making; the model of Klein, Calderwood and Clinton-Cirocco (1986) was originally developed on the basis of observations of fireground commanders. However, there is over-riding agreement between the models on certain key elements, which include situation assessment, mental imagery, and selection of a course of action.

A simplified framework illustrates the relationship between situation assessment and decision-making strategy. Situation assessment feeds into a continuum of decision-making strategies that range (in terms of decreasing cognitive resources/‘thinking power’ required) from creative, through analytical, then rule-based, to recognition-primed. The choice of decision-making strategy depends on the commander’s assessment of available time and level of risk. These two steps – ‘what is the problem’ and ‘what shall I do’ – are discussed next.

2.2.1 Situation assessment: Step 1 – what is the problem?

Situation assessment, a key feature of most NDM models, is considered paramount to effective decision-making (Cannon-Bowers and Bell, 1997; Endsley and Garland, 2000), where the first step in the decision-making task is to evaluate the characteristics of the event correctly. Rapid decisions are made holistically, on the basis of situation recognition and pattern matching through to memory structures. As Endsley (1997) states:

> In most settings effective decision-making largely depends on having a good understanding of the situation at hand.

(Endsley, 1997: 269)
Situation assessment refers to the process of acquiring information, in other words to the integration of cues from the environment, being interpreted on the basis of pre-existing knowledge leading to meaning being given to the cues.

Endsley (1997) proposes that situation awareness comprises three different levels:

**Level 1** consists of perceiving the status, attributes, and dynamics of relevant elements in the environment. For any individual, this relates to their awareness of their own situation and that of others.

**Level 2** combines and goes beyond the elements of Level 1. This level relates to comprehending the relevant cues from the environment and their significance.

**Level 3** further combines Levels 1 and 2, and refers to projecting the future activity of the elements in the environment.

Decision-makers may choose what to do based on their perception of the situation, although sometimes this perception may be incorrect. (This is a very different problem compared to when the situation is understood correctly and a poor choice is made of the appropriate action). Thus the role of situation awareness is particularly crucial to command decision-making as, in times of high mental workload and stress, any ‘loss’ of situation awareness may negatively influence the decision-making process. Faulty or inadequate situation assessment (‘misreading the situation’) has been proposed to have contributed to errors by individuals in previous disasters, rather than choice of action (Rouse, Cannon-Bowers and Salas, 1992).

Situation assessment is also compatible with the observe-and-orient parts of Boyd’s ‘OODA loop’ used in the US Marine Corps to describe the decision-making process (Paradis, Treurniet and Roy, 1998).

- **Observe** – gather information and data from the situation.
- **Orient** – assess the situation and process data about the current situation.
- **Decide** – make a decision and select the course of action to execute.
- **Act** – implement the selected course of action.

The use of processes such as the OODA loop assists decision-makers in effective incident command, highlights the importance of time and risk assessment, as discussed in further detail in this chapter.

**Assessment of time and risk**

As Orasanu and Fischer (1997) point out, as part of situation assessment, factors such as level of risk and time available for making decisions must also be taken into consideration. These situational aspects were found to influence decisions made and actions taken by expert pilots, as time and risk called for an immediate response whether or not the problem was fully understood. When risk and time pressures were low, further diagnosis can take place and various options can be considered.
Pilot behaviour in simulators was also concurrently examined to determine what constitutes effective flight crew decision-making, and specifically, what conditions pose problems and lead to poor decisions. Their observations confirmed that the more effective crews tailored their decision strategies to the situation. Moreover, effective crews also employed generic strategies beneficial in all decision contexts, such as good situation assessment, contingency planning and task management. Use of such strategies allowed decision-makers to ‘buy’ more time in which to make a good decision, whereas lower performing crews were driven by time pressures and situational demands rather than managing their ‘windows of opportunity’.

Situation awareness is the crucial initial stage of effective decision-making. Understanding the situation, as well as weighing up available time and possible risks, inextricably impacts on the course of action selected. If the crisis team have a good situation awareness they ‘will have a greater likelihood of making appropriate decisions and performing well in dynamic systems’ (Endsley, 1995: 61).

2.2.2 Four decision-making strategies: Step 2– what shall I do?

Once an initial situation assessment has been reached, the next step for the crisis team is to decide on a course of action (CoA) appropriate to the identified situation. The choice of decision-making strategy being dependent upon the influencing factors at that particular phase of the incident, such as the demands of the situation, implementation of response procedures, and type, or phase, of the incident (Martin, Flin and Skriver, 1997). The decision-maker requires the ability to adapt behaviour depending on task demands, time pressure and information constraints. The selection of a course of action can be achieved by using a number of different decision processes. Based on Orasanu’s work in aviation (1997), military research (Pascual and Henderson, 1997), plus training of UK senior police officers in critical incident management, Crego and Spinks (1997) found that incident commanders may use one of four principal decision strategies, depending on their assessment of the available time and level of risk:

- Recognition-primed (intuition/gut feel): if situation X then action Y – little conscious effort needed to retrieve Y.
- Procedures (written or memorised): if X then Y – conscious search.
- Analytical comparison of different CoA options: if X, which Y?
- Creative (designing a novel CoA): if X, have no Y, design new Y.

These four decision strategies are ordered in relation to their apparently increasing requirement for cognitive resources. That is, requiring increasing levels of mental concentration, not just to retrieve information from the memory stores (what psychologists call ‘long term memory’), but to consciously operate on, or think about, the information retrieved (this is using ‘working memory’). Intuitive or recognition-primed decision-making is very rapid and seems to require little conscious effort, placing few demands on working memory (see Stokes, 1997: 186). In contrast, analytical decision-making, which involves considering the pros and cons of several options simultaneously, or creative decision-making, which designs a novel course
of action, both require extensive cognitive resources and have a heavy demand on conscious processing (working memory).

The decision strategies selected are likely to change during the management of crisis, and more than one strategy may be being employed over a given time period, as the event goes through periods of ‘crisis phasing’ (Crego and Spinks, 1997), where there are periods of severe time constraint juxtaposed with periods of relative quiet and calm. Crego and Harris (2001) refer to these as ‘fast burn’ or ‘slow burn’ incidents. This is a cyclical process with ongoing attention to monitoring, maintaining and sharing situation awareness. These four decision processes are discussed below in turn.

### 2.3 Recognition-primed decision-making (RPD)

Dr Gary Klein is the Chief Scientist at Applied Research Associates. He has conducted research into decision-making by attempting to ‘get inside the head’ of decision-makers operating in many different domains. Klein’s approach stemmed from his dissatisfaction with the applicability of traditional models of decision-making to real life situations, particularly when the decisions could be crucial. He was interested in operational environments where experienced decision-makers had to determine a course of action under conditions of high stakes, time pressures, dynamic settings, uncertainty, ambiguous information and multiple players. Klein’s research began with a study of urban fireground commanders who had to make decisions such as whether to initiate search and rescue, whether to begin an offensive attack or concentrate on defensive precautions, and how to deploy their resources. They found that the fireground commanders’ accounts of their decision-making did not fit in to any conventional decision-tree framework. Klein tells the story of receiving a research contract to study decision-making and then interviewing his first fireground commander who had just successfully managed an incident. When he asked the commander to describe the decisions he had just made, to Klein’s disappointment the commander told him that he was not aware of having made any decisions – instead he had just taken the appropriate command and control actions to extinguish the fire. Klein says that at this point he could imagine his contract disappearing into thin air, but was sufficiently intrigued by the commander’s claim that he did not make decisions for him to continue the study.

The fireground commanders argued that they were not ‘making choices’, ‘considering alternatives’, or ‘assessing probabilities’. They saw themselves as acting and reacting on the basis of prior experience; they were generating, monitoring, and modifying plans to meet the needs of the situations. Rarely did the fireground commanders contrast even two options. We could see no way in which the concept of optimal choice might be applied. Moreover, it appeared that a search for an optimal choice could stall the fireground commanders long enough to lose control of the operation altogether. The fireground commanders were more interested in finding actions that were workable, timely, and cost-effective.

(Klein, 1993: 139)
During post-incident interviews, using a technique they developed called the critical decision method, they found that the commanders could describe other possible courses of action but they maintained that during the incident they had not spent any time deliberating about the advantages or disadvantages of these different options. It appeared that these incident commanders had concentrated on assessing and classifying the situation in front of them. Once they recognised that they were dealing with a particular type of event, they usually also knew the typical response to tackle it. They would then quickly evaluate the feasibility of that course of action, imagining how they would implement it, to check whether anything important might go wrong. If they envisaged any problems, then the plan might be modified but only if they rejected it, would they consider another strategy. Klein has also studied other decision-makers faced with similar demand characteristics (for example tank platoon captains, naval warfare commanders, intensive care nurses) and found the same pattern of results (see Klein, 1998). On the basis of these findings a template was developed for this strategy called the recognition-primed decision (RPD) model. This describes how experienced decision-makers can rapidly decide on the appropriate course of action in a high-pressure situation.

The model has evolved into three basic formats. In the simplest version, shown as Level 1, the decision-maker recognises the type of situation, knows the appropriate response and implements it. If the situation is more complex and/or the decision-maker cannot easily classify the type of problem faced, then as in Level 2, there may be a more pronounced diagnosis (situation assessment) phase. This can involve a simple feature match where the decision-maker thinks of several interpretations of the situation and uses key features to determine which interpretation provides the best match with the available cues. Alternatively, the decision-maker may have to combine these features to construct a plausible explanation of the situation – this is called story building, an idea derived from legal research into juror decision-making. Where the appropriate response is unambiguously associated with the situation assessment it is implemented as indicated in the Level 1 model. In cases where the decision-maker is less sure of the option, then the RPD model, Level 3 version indicates that before an action is implemented there is a brief mental evaluation to check whether there are likely to be any problems. This is called mental simulation or pre-playing the course of action (an ‘action replay’ in reverse) and if it is deemed problematical then an attempt will be made to modify or adapt it before it is rejected. At that point the commander would re-examine the situation to generate a second course of action.

Key features of the RPD model are as follows:

- focus on situation assessment;
- aim is to ‘satisfice’ not optimise;
- for experienced decision-makers, first option is usually workable;
- serial generation and evaluation of options (action plans);
- check action plan will work using mental simulation;
- focus on elaborating and improving action plan; and
- decision-maker is primed to act.
To the decision-maker, the NDM-type strategies (such as RPD) feel like an intuitive response rather than an analytic comparison or rational choice of alternative options. As ‘intuition’ is defined as ‘the power of the mind by which it immediately perceives the truth of things without reasoning or analysis’ – it may be an acceptable label for RPD, which is rapid situation assessment to achieve pattern recognition and associated recall of a matched action plan from memory.

2.4 Procedure-based decisions (standard operating procedures)

Another decision strategy is the use of procedures or rules, such as standard operating procedures (SOP) or emergency operating procedures (EOP). These methods involve the identification of the problem faced and the retrieval, from memory or published manuals/checklists, of the rule or taught method for dealing with this particular situation. These are widely used in aviation and in industry, and are frequently practised in training so that the critical rules may be committed to memory. SOPs in high-reliability industries are often an integral part of installation design and are devised against specific acceptability criteria. SOPs are generally well known, and can be recalled easily from memory, or if less familiar can be supported by the use of check sheets, manuals or cue cards. Rules and procedures are in many cases an excellent method of decision-making in emergencies, as they have normally been written by experts on the basis of careful analysis of alternative courses of action. Their application requires identification of the problem, then retrieval of the matching action. This requires more cognitive processing than RPD, but much less than analysis of alternative options or creating a new option. Therefore, the heavy reliance on procedures in time-pressured domains (such as aviation) and safety-critical domains (for example, the nuclear industry), although both these domains acknowledge that unforeseen situations or unusual combinations of events can arise.

Merely having SOPs in place does not necessarily guarantee compliance (Dobson, 1995). As Reason (1990) points out, human beings can be susceptible to performing ‘violations’ – deliberate, but not necessarily reprehensible, deviations from practices deemed necessary to maintain the safe operation of a potentially hazardous system such as operating procedures, codes of practice and rules. This is particularly likely to happen if the rules are out of date or if they have been superseded by custom and practice. SOPs for emergency management should be regularly updated and should be designed in such a way that the crucial importance of being able to improvise is still recognised, and the SOP provides a suitable framework rather than repressing flexibility (Dror, 1988).

A trend exists in many high-risk organisations to create SOPs for every predictable event or crisis. However, if a decision-maker is used to relying on finding a prescribed procedure or a manual for every situation, then a problem may emerge when a novel emergency is encountered. Almost by definition, a crisis arises because the events are unanticipated and no simple procedures exist to remedy the situation. Moreover, an over-reliance on SOPs may lead to a situation where they are viewed as hard-and-fast rules that must be followed blindly, and the exploration of alternative ideas may be discouraged. As Skriver and Flin (1997) conclude, increasing the number and
specificity of emergency SOPs in industrial settings may actually weaken managers' ability to deal with the unexpected crisis.

In domains where it is not obligatory to use written SOPs, then a more flexible approach may be warranted. Rather than depending on finding answers in a rule-book during an emergency, situational cues may be matched to existing patterns stored in memory, with the SOPs used as guidelines. This of course requires a good knowledge of procedures combined with experience, which will normally be developed through training – for example, exercises, simulator training and involvement in safety management systems. While standard procedures are extremely helpful, it is important to ensure that decision-making in emergency situations is based on sound foundations, not simply on blind application of rules.

2.5 Analytical/option comparison

Analytical decision-making typically occurs when neither time nor risk are limited, and where information to evaluate alternative options is available. Examples of analytical decision-making include choosing a holiday destination or a brand of car for the police traffic fleet. Analytical decision-making requires a full situation assessment and rigorous information search, and comparison of several courses of action retrieved from memory, thus resulting in a high load on working memory. This therefore takes longer to accomplish and is generally only feasible in times of relative quiet with minimal distraction (and preferably with paper and pencil to hand). Heuristics (rules of thumb or simplifications) tend to be used to reduce the memory load as various options are weighed up. This is usually the optimal method of reaching a decision, as all alternatives are considered and carefully evaluated. There are inumerable theories and complex mathematical methods to aid in the perfection of this process, ranging from Bayesian statistics to multi-attribute utility theory. Of necessity, analytical decision-making is time consuming, requires high cognitive resources and is extremely difficult to do in noisy, dynamic environments. Therefore it tends to be utilised by commanders in phases of lower time pressure or in planning phases of emergency preparedness, or in the strategic level of command where less immediate, longer term plans are drawn up. The debrief following a simulation exercise is the ideal time to consider this.

2.6 Creative decision-making

The fourth category is labelled ‘creative decision-making’, from Orasanu's (1997) taxonomy of the different decision strategies used by pilots. In this case, a completely new course of action must be devised. Very little research has been conducted into this type of decision-making in a crisis, but it requires considerable cognitive resources to work out a new solution to an unfamiliar problem, from first principles. (This is very different from recognising that the situation is similar to something encountered previously, which is analogical reasoning and essentially the basis of a recognition-primed decision.) Creative decision-making is unlikely to be attempted in an emergency unless the commander has no other solutions that will satisfactorily contain the situation and an hour or more to think about the problem.
On the other hand, decision-making at the operational level, or ‘sharp end’, is often out of necessity, faster, more critical, and time- and risk-pressured. Decision-making takes place in real time, and operational managers may have to react rapidly to situational demands. Decision-making therefore would tend to contain rule-based as well as intuitive elements. Under time and risk pressure, decisions may primarily be made on the basis of pattern recognition (for example, RPD) of the situations encountered. Moreover, situation awareness is critical, as performance depends on rapid identification of the situation and fast access to stored patterns of pre-programmed responses. When time or risk is low, a more analytical decision-making strategy may be utilised. Thus, where time, risk and quality of information allow, decision-makers may be able to select from a number of generated decision options and pick the most suitable (Crego and Spinks, 1997).

3 Summary

The choice of a particular decision-making strategy is influenced by factors such as amount of time and level of risk, availability of known rules or procedures, availability of information, and complexity of, and familiarity with, the situation (Fallesen, 2000). For the incident commander, pre-planning, experience and training help to build up a repertoire of well rehearsed CoAs, which can be readily implemented. Of course, completely novel situations can and do arise. The ability to assess the situation as fully as possible, and take the best advantage from the time available, allows the incident commander to exercise control and to effectively command such situations.

Make short notes on the following:

■ What is naturalistic decision-making?
■ How can the literature on decision-making inform practice?

Suggested further reading:

9 Case studies

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3 Case Study III – The King’s Cross Underground fire 84
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These case studies are intended to provide an illustration of events that different organisations can face. They are not intended to provide solutions, but to give you an opportunity to think about the issues involved in light of what you have covered in the unit. Use what you have learned to consider the events and how you might approach their management.

1 Case Study I – City University’s recovery from fire

The information about this case study is taken from the City University’s publication Project Phoenix: A Case Study of City University’s Recovery from Fire, which was published to share experiences gained from the event with other institutions.

On 21 May 2001, City University, London, experienced that which we all fear – a major fire. It occurred in a Grade II listed building, the largest building on campus, and if this was not testing enough the incident occurred at the height of the examination period, further increasing disruption to staff and students alike.

Estimates for the cost of restitution and temporary measures exceeded £10 million, the majority being attributable to the costs of finding temporary accommodation. A large part of the affected building was out of service for approximately two years. In addition to the fire damage, considerable smoke and water damage extended the clean-up process. At the height of the blaze, 13 fire appliances and a helicopter were on site to try to bring it under control.

1.1 Events of the fire

The alarm was raised by a Security Officer who was alerted by a fire alarm. On investigation, he found smoke pouring from an open letter box and attempted to bring the blaze under control, with the help of fire tenders, whilst awaiting the fire brigade.

Within an hour of the blaze being discovered, the Head of Security had contacted senior staff, who began arriving less than 45 minutes after the discovery. The University’s Press Officer also arrived to co-ordinate press interviews and brief University spokespeople.

At the time of the blaze an examination was in progress within the building. A total of 250 people had to be evacuated and the examination halted.

In total, around one hundred staff lost their workspace and some also lost working materials. Teaching areas and administration offices were also damaged or destroyed. The Computing Department and School of Social and Human Sciences were largely destroyed and the Music Department partially flooded. In all, 3000 square metres were lost.
1.2 University location

The fire occurred at a location on the campus only 500 metres away from the local fire station. Less fortunate was the location’s proximity to newspaper offices and television stations, producing even greater media interest in the story.

1.3 Bad timing

In addition to the examination period being at its height, it was also a ‘slow’ news period and the media therefore showed even more interest in the story than they would have done ordinarily. Their coverage had to be carefully managed as it was affecting business continuity at the University; potential students believed that the University was closed, so a large advertising campaign was raised to spread the ‘business as usual’ message. The Journalism Department spread the word to its media contacts via e-mail and the University website proved an extremely useful resource in getting this message across. Internally, the staff newsletter was used to strengthen the ‘business as usual’ message.

The lack of key staff made managing the incident more difficult. The positions of University Secretary, Director of Personnel and a Director of Estates and Facilities were either being advertised or were not due to be taken up until later in the year.

Furthermore, the Vice Chancellor had announced that he wanted to change the organisational structure of senior staff during the period from May 2001 to December 2001. It was planned to merge the two main planning committees to more deeply incorporate them into the process of University strategy formation.

1.4 University culture and policies

The University employed more than 1200 permanent staff and numerous part-time staff. There were in excess of 14 000 students and every day hundreds of people visited the University, making it a logistical nightmare. Security staff were posted at every entrance and exit, and routinely checked security cards.

In 1993 a ‘No Smoking’ policy was adopted and smoking was restricted to specifically designated areas. Fire alarm tests were performed weekly in addition to unannounced fire simulations at periodic intervals.

1.5 University risk assessment, management and contingency planning

City University’s crisis management plans had been reviewed shortly before the fire by the Southern Universities Management Services organisation. The plans worked well in the event but the University did not have a corporate business continuity plan.

The University generally took a proactive approach to risk assessment and management, pioneering this and taking a holistic view of the organisation. A best
practice document had been created with a risk register divided into business domains within which risks relevant to University strategies were listed and assigned a score reflecting the likelihood of their occurrence and the impact they would have. If a high score was assigned to both aspects, the controls that surrounded that risk would be assessed by the business domain manager to determine how it could be better managed. This practice is also being introduced at the individual school level within the University.

Every two years the University Finance and General Purpose Committee reviews its insurance cover to ensure its appropriateness and that it is up-to-date. This proved invaluable following the fire.

1.6 Objectives identified following the fire

Objectives to provide clarity and guidance for the clean up and restitution were determined at the earliest opportunity. These were identified as:

- to continue to operate in all academic and support units directly affected by the fire and to support affected individuals as well as possible;
- to get the affected people back into decent accommodation as soon as was possible and to create the necessary teaching spaces for late September whilst restoring the damaged building;
- to obtain the entirety of the insurance entitlement to cover the damage;
- to maintain control of the entire operation, document it and learn from the experience whilst minimising media-induced fallout and turning it to advantage wherever possible; and
- to identify the cause of the fire and to take any appropriate management action to minimise the risk of a re-occurrence.

In addition, it was necessary to recreate a research area that had been lost. This was especially problematic as it had to be identical to the original including its size, colour, shape and layout so that the long-running research was not invalidated.

1.7 The emergency management team (EMT)

Membership of the EMT varied, reducing as the three-month period progressed, ultimately culminating in a small, focused team. Varying the membership as and when required capitalised on individual expertise and knowledge. The EMT met twice on the day of the fire and daily for several days after that. This reduced to approximately every week until all standard operational management lines were able to manage the EMT activities.
At every meeting minutes were taken and circulated for action; these were sent to all of the affected senior managers. Recommended actions and problems were collated to form an archive with documentary evidence on the fire and decisions, including video footage and photographs. This proved useful when dealing with the insurers. The principle was that actions were agreed upon and those responsible made them happen, chased by the minute taker if necessary. The benefit of group working was clear as many actions interacted with each other and this was not always foreseeable if one was working in isolation. Group working was supportive, and critical as and when required.

In the following weeks, the EMT oversaw many activities including establishing the extent of the lost space and the implications for teaching and other activities, as well as defining the losses involved.

1.8 Urgent tasks for the following day

Ten critical activities were identified that day. These related to re-locating staff and students, learning about what had happened and informing those affected. They were as follows:

- re-arrange affected examinations and inform students;
- secure enough teaching space for lectures;
- ensure site was safe;
- relocate groups of staff;
- inform insurers of the fire;
- recover, and restore where necessary, information held in computer or paper files;
- ensure that the media did not exaggerate the effects;
- ensure that the quality of teaching and learning was not compromised;
- manage staff fears and expectations; and
- manage the logistics of dealing with people.

Good communications were crucial to enable these activities to be successfully completed. It also allowed home-working by some staff, easing some of the problems.

1.9 Results of the fire

Staff workload obviously increased due to the lack of expertise described earlier. To lessen this, external experts were used to help with the aftermath.

Although the insurers did cover the majority of the cost, the University had to cover the remainder, which meant that its available capital was depleted and it therefore incurred opportunity costs as the money was no longer available for investment elsewhere.
A great deal of management time also had to be spent working with the loss adjustors. The University also appointed their own loss adjustors. The benefits of this were two-fold: firstly, it was then possible to obtain expert advice immediately and secondly it protected the University’s interests.

Despite the event, City University still met its target student numbers and survived as a functioning business and university.

1.10 Lessons learnt

Some staff did not back up their computer work and hence lost some of it in the fire. The School of Informatics did, however, create daily back-up tapes that were stored in the fire safe. This proved invaluable.

Effective, timely, frequent and consistent communications were vital and different mediums were necessary to convey messages. Face-to-face communications were crucial for those affected. The contributions from all those involved were recognised through formal letters of thanks, stories in the staff newsletter and a party. This helped to confirm the University’s commitment and appreciation of staff and the efforts that they had made.

The EMT was very successful and following the success of relationships with external professionals, it was felt that it would be advisable to build longer-term relationships with those who had helped during the aftermath of the fire. It was also felt that it would be beneficial to make some formal arrangements with other nearby organisations to provide accommodation if it was ever needed. The interaction between problems made it harder to solve them and will be actively considered in the future.

The review of insurance every two years meant that it was generally satisfactory, with one exception. Some staff had paid privately for books that were used for teaching. They felt that compensation was due for those lost in the fire. An interim budget was allocated to cover immediate replacement and a small premium increase in the long-term was arranged to cover this.

There is now a strong emphasis on maintaining teaching material in electronic form and procedures have been implemented to monitor the impact on teaching. Two important elements were found to be missing from the organisation. No business continuity plan existed that would have helped the University to prepare for a major disaster. The information infrastructure was also found to be lacking, as was the availability of teaching space and staff. Consideration is being given to policies, practices and responsibilities, and whether the American university practice of fire marshals inspecting every room and having the authority to require staff to resolve any problems may be advisable at the University.
2 Case Study II – training exercises at ‘the Bank’

2.1 The Bank, a historical perspective to crisis management and simulation exercises

This case study is based on a series of training exercises conducted for a large commercial bank.

The experience of the ‘Bishopsgate Bomb’ had already highlighted the need for furthering contingency arrangements and much work had already been undertaken to develop plans. However, the experience of the ‘Manchester Bomb’ highlighted that several organisational issues might impede a successful group-wide response. It was clear from this experience that more effort was required to bring all parties concerned on board. Four fundamentals would be crucial to successful business continuity, and getting them right would both minimise the impact on the business and speed of recovery.

- A corporate climate of empowerment, in which those best qualified to get on with the job are trusted to do so without the constant need to seek authority.
- Local ownership of local plans and simplicity in overall group approach combined with a flexible management framework that differentiates between the tactical and the strategic.
- Strong and professional teamwork between all parties concerned. This teamwork needs to be forged in normal day-to-day business and exploited to the full when disaster strikes.
- Highly competent and dedicated people supported by resilient up-to-date information systems. Harnessing these talents in a crisis requires continual co-operative effort during normal business operations. It would be true to say that there are units in the group which, in some disaster scenarios would have to work closely together, but who today barely know of each other’s existence. This does not augur well for rapid team-working in a crisis.

Shortly after these issues had been brought to the fore, the Bank’s senior management decided that exercising could form an effective and efficient method for tackling some of the concerns. Exercises in two stages were to be planned for senior managers. These two stages are further referred to as two separate exercises one and two.

The two exercises were carried out at the Bank’s London offices and were of a ‘low-fidelity’ type, using paper injects and verbal inputs as the main source of stimulation. Questionnaires were used, before and after the exercises, to assess changes in players’ perceptions of personal and team roles as a direct result of participation in the exercise. Initial debriefs were held for all participants shortly after the exercise and took the form of a question and answer session, while observers highlighted
significant findings and some of the major issues. Both scenarios were of such
gravity that they justified the activation of a crisis management organisation within the
Bank’s headquarters.

The scenario or incident unfolded as a series of prompts or injects, designed to
trigger one of three types of response in the participants. First, action, which could
range from an immediate response, consultation among crisis managers, information
gathering, and communication to other stakeholders. Second, realism, through
raising awareness of the crisis situation, which would not require immediate (re-)
action; instead they added to the degree of crisis realism. Third, to create a stressful
workload. This requires participants to allocate them a priority – such as ‘urgent’,
‘deal with at a quieter time’ or ‘ignore’.

The organisational structure that the Bank had defined for managing the restoration
of business operations resembled the gold/silver/bronze concept of the emergency
services. This meant that crisis management and disaster recovery were executed at
strategic, tactical and operational levels. The Bank’s philosophy was that the nature
of the disaster and the impact on the business would define the scale of activation for
the response structure (see Figures 1 and 2).

The exact scale and nature of the situation will also determine the degree of
centralisation of command and control; for a situation of minor severity, the recovery
operation may best be orchestrated at the local level, in other words by the Disaster
Recovery Team (DRT). However, it is explicitly stated that, notwithstanding any
delegation, events that may cause major disruption, such as the ‘Manchester Bomb’,
would require centralised direction on recovery priorities by the Incident Control Group
(ICG) and the Bank Control Group (BCG). It is somewhat surprising, though, that the
same example is used in an internal memorandum to the Chief Executive to argue
against the activation of a BCG. It is stated that ‘many incidents, including the bomb
in Manchester, do not reach this threshold of severity and do not require a BCG’.

The BCG is the name given to the process, co-ordinated by a nominated senior
executive, by which the Executive Directors and other major stakeholders are briefed
on events. The BCG reports to the Executive Director of Group Operations and
has been given authority by the Executive Director Committee (EDCO). Corporate
Affairs, for example, major corporate reputational issues, are also within the remit of
the BCG. It is stated that the BCG will make strategic decisions aimed at restoring
normal business operations and include principle decisions to protect Bank interests,
‘resolution of major inter-business priorities during the recovery process’, and
‘preservation of the reputation of the Bank through high level internal and external
communications’. Because the BCG is not established to manage the tactics of
the recovery operation, the ICG has been established under direct leadership of the
Director ICG (D-ICG). D-ICG will take command of the incident, decide priorities,
provide necessary resources to minimise the impact on the Bank and ensure
recovery operations, which give primacy to staff safety and thereafter financial
loss. Membership of the ICG will be drawn from key recovery functions and those
businesses affected by the incident (see Figure 1).
In addition to the BCG, ICG and DRT(s) the Bank has a permanent security cell. This security cell performs a crucial information gathering and dissemination role, at least during the initial stages of an incident.

2.1.1 Exercise one

The four fundamentals mentioned earlier were for exercise one. They were translated into exercise objectives that aimed at identifying and/or assessing the following:

- the extent of any necessary change to the crisis management structure;
- the effectiveness of existing plans and subsequent issues of command control and communications in the simulated environment;
- the adequacy of contingency trigger mechanisms; and
- any training requirements.

The BCG consisted of seven senior representatives who were to look after the strategic interest of the Bank. The group also had two administrative assistants for various support roles. The team had several phones positioned on separate tables, mobile phones, and a fax for communication, while a tape recorder was used to
simulate radio broadcasts. The ICG, which consisted of 13 people, operated in another building out of a conference room adjacent to the Director's office. It was similarly equipped but also had a whiteboard, which was used to display significant information. Scenario injects were communicated by the directing staff or a trusted agent directly with the BCG and ICG.

In general, each group demonstrated good team-working – the small size of the BCG helped to achieve this easily. The ICG consisted of a larger number of people, which on occasions inhibited teamwork. Various people worked as individual specialists while smaller sub-groups were formed to deal with specific issues, such as ‘people’ and ‘property’. To achieve team-working strong leadership was exercised by the D-ICG. He ensured that the group had a shared picture, and group discussion and guidance enabled it to work towards common goals.

In contrast, leadership of the Chair of the BCG was lacking, but the BCG team itself seemed nevertheless confident and persevered. It can be argued that team attributes such as size and composition might not have required strong leadership. However, decision-making appeared lacking and, arguably, might have improved if through leadership the group had been steered towards achieving clear objectives. The observational data reveals that some members struggled with basic procedures. This was confirmed by the questionnaires, which highlighted various levels of preparedness and that roles and responsibilities were not always apparent.

Communication took place frequently within each of the groups. The BCG members shared information amongst them, exchanged views and often worked towards achieving group consensus. Within the ICG, the size of the team influenced the level of communication that could take place within the team as a whole. Arguably the formation of sub-groups could have affected team communication; the subgroups were observed to have shared information regularly and worked towards establishing a common picture. Through team discussion, between individual members and subgroups, more formal ways of communication were created. This combination of informal and formal team communication seemed highly effective and enabled risks to be identified and assessed adequately.

Communication between the two groups was lacking and often caused BCG members to focus on issues that were dealt with by the ICG. There was also a lack of external communication from the BCG to other agencies. Although the Bank’s board members had been informed almost at the outset of the situation, media communication was lacking. As a consequence, initial media messages reported the Bank’s efforts in a negative context. t’Hart (1993) warns of this phenomenon and explains that authorities often lose control and are overtaken by events. Experience shows that ‘in most cases mass media are much quicker and more powerful in terms of generating images of the situation for mass consumption’.

Both teams appeared to struggle with the available information. There were no mechanisms in place for accurately logging and displaying information and actions. It is interesting to note the difficulty encountered by simply superimposing a response.
Risk, crisis and disaster management

structure designed for the emergency services (gold/silver/bronze) and placing this in a commercial setting. Although whiteboards and other recording devices were available, the apparent lack of an information policy (neither was there a formal Bank policy nor was one agreed for the purpose of the exercise) caused certain useful data to get lost. Ironically, data that was displayed often appeared to have no useful purpose. Furthermore, the participants failed to keep track of actions taken.

For most of the exercise, the BCG and its Chair were absorbed by the flow of incidents and failed to detect the situation adequately. It is suggested that the lack of a plan of action, possibly related to the uncertainty of roles and responsibilities, could be in part to blame. However, the reason why significant issues were not recognised remains unanswered. It is suggested that in part this may be explained by the ‘groupthink’ phenomenon, or collective foolishness, which occurs as a consequence of the preservation of group harmony. Amiability appeared to override the group’s ability to critically assess decision problems, process strategic information and intelligently choose a course of action.

Exercise evaluation relied heavily on self-assessment and reflection by the participants. Feedback was positive and a no-blame approach used. As part of the debriefing process, participants were given personal copies of the exercise video to study at home. This enabled personal investigation of the exercise performance to be carried out in a private manner. It could therefore be argued that the learning potential was exploited and evidence for this can be found in the Bank’s own changes to the management structure prior to exercise two. Perhaps the learning deficit and ways to overcome it should always be considered as part of exercise planning.

The D-ICG, in contrast, had given clear guidelines along which the members were working. They were pursuing the build-up of a picture of the situation, while internal communication led to a consensus, enabling effective decision-making. However, only a small number of decisions were made and the group was predominantly occupied with creating an accurate and complete picture of the situation. It could be argued that these activities — in other words, detection — form the first crucial stage of the decision-making process. Without correct recognition that the situation is a crisis, and without some knowledge of the extent of it, decision alternatives cannot be explored.

2.1.2 Exercise two

As a direct result of exercise one, the Bank’s senior management decided to review the strategic and tactical crisis management arrangements. Exercise one had revealed that the inter-group communication between BCG and ICG was poor. Often, the BCG members focused on issues that were dealt with by the ICG. It was decided that the organisation needed restructuring and that clarity of the roles and responsibilities for each of the two main groups was required.

Stronger emphasis was put on the strategic function of the BCG and its role as an interface with the Bank’s board and with the media. It was decided to minimise the
composition of the BCG to one senior manager assisted by support staff and media experts. After exercise one it was also recognised that the ‘real’ management of a ‘disaster’ is performed by the ICG. However, for that group to function effectively it would require additional specialist expertise in the team. Furthermore, it was also felt that the group’s name ‘ICG’ did not accurately reflect its role and was therefore subsequently changed to Disaster Recovery Group (DRG). To prevent confusion with the local Disaster Recovery Teams, these were renamed to Local Recovery Groups (LRGs) (see Figure 2).

(Source: The Bank, 1998: 1)

**Figure 2** Main components of the Bank’s disaster management structure 1998

To resolve communication and information processing problems, log and action sheets were introduced and a support team was formed to assist the D-DRG by filtering and recording telephone calls, and recording and progressing actions, including the reasons for them. In addition, this team was required to send information of importance directly to the BCG.
In principle, the support team does not have the authority to make decisions. Instead, a senior support team member, called a ‘reader’ or ‘allocator’ assesses the information and prioritises it for actioning by the D-DRG or a DRG team member. **Figure 3** shows the communication and information within the new structure, while **Figure 4** illustrates the information flows from a DST perspective.
Exercise two was aimed at testing the amended structure and a slightly different approach was applied to the exercise by using call-out procedures. The Chair of the BCG and D-DRG were the first to be notified, and were given the responsibility for activation of the further structure. In addition, the support team was active at the start of the exercise, while a more realistic information flow was created through the use of the Bank’s security cell.

For exercise two the following objectives had been defined:

- to examine the revised crisis management structure;
- to test procedures; and
- to increase the awareness.

It is noted that during exercise two the training of individual participants was considered a secondary objective.
This time the various groups gathered in close proximity to each other. The DRG operated from the same location as during exercise one, while the DST was located in an adjacent office. The BCG was situated nearby and initially consisted of the Chair and two assistants, but was augmented with two media experts after approximately two hours.

Due to the restructuring of the crisis management organisation, strategic decision-making had now become vested in a single person. A clear divide between BCG and DRG was apparent, which enabled the C-BCG not only to make strategic decisions but also to provide supervision and guidance to the D-DRG. The latter, in contrast, became overwhelmed during the first hours of the scenario. Inter-group communication appeared extremely successful and at various occasions the C-BCG and D-DRG met face-to-face. A joint strategy was devised and the groups operated in harmony, each looking after different issues. It was apparent that the main aim of the BCG was to provide top-cover for issues that could not be resolved by the DRG, to resolve conflicts, especially with regards to allocation of priorities for business recovery and to make financial decisions.

Injects that were received and logged by the DST were offered to the Director at various times. During the initial stages of the exercise these incidents were not actioned due to the absence of DRG team members during the call-out period. Nevertheless, the D-DRG did not use the junior members of staff that were present. Although tasked with information processing, prioritisation and presentation, under the circumstances they were the best resource available. However, at several occasions an alternative approach to decision-making surfaced when the DST ‘allocator’ started to prioritise the injects. Those that were deemed to require an urgent response were brought to the attention of the D-DRG, with decision alternatives and a suggested approach. The fact that these injects were actioned may suggest that the way in which information is presented to decision-makers is of greater significance than the availability of information. t’Hart (1993) argues that when the degree of time pressure is high, structures that appear to enable rapid responses are adopted.

In general, the DRG performance was considerably less effective. For most of the exercise a shared picture did not exist and despite guidance notes several members were still unaware of their specific roles and responsibilities. Communication problems, albeit in part, explained the failure to create a clear picture of the situation. The introduction of log and action sheets added a level of bureaucracy. It also remained uncertain how significant the impact on the response had been. Methods of displaying information had improved, although relevant information was still missing and incorrect information was displayed. Too much information was as problematic as too little. Future exercises would need to focus on the quality and sorting of information.
2.2 Exercise design and learning

2.2.1 Exercise scenarios

The precise nature of the scenarios remains confidential because the ideas could be used against any bank; we would not wish to see this threat realised. Both exercises were based on scenarios that created a serious crisis for the organisation. By serious crisis we mean that fundamental operational systems would be compromised to the extent that the bank was exposed as a viable entity.

It is often said that crisis simulations require a scenario with a high level of realism. It could be argued that for players to become prepared for crisis management, they must have a feel for what it is to operate under crisis conditions. This would imply that the artificial situation must induce these feelings and trigger reactions accordingly. It is uncertain whether the exercise scenarios achieved this objective. Factors such as preparedness, competence and skills, but also the pressure to operate in the eye of superiors, seem to play a significant role in player performance. On the other hand, learning for individuals that experience such reactions may also be seriously affected. This confirms Stern’s (1997) argument that a dichotomy exists between crises and learning. It is further questionable as to whether the way in which the scenario was administered supports an appropriate learning environment. The exercises were designed following the military tradition, in that they commenced at a certain time and lasted several hours, but were never paused. Arguably, if participants are not offered any support, they may become frustrated, time is therefore wasted and mistakes may go unnoticed. Moreover, because it is expected that players make mistakes, how this failure is anticipated will be critical to the learning process (Stretch, 2000). It is therefore suggested that steeper learning curves might have been achieved if players had been given the opportunity to reflect on their performance during the exercises. This would also have enabled them to experiment with their new insights.

2.2.2 Opportunities for individual learning

An assessment of whether learning has taken place should firstly focus on the achievement of exercise objectives. Although organisational learning takes place at personal, team and organisational levels, both exercises were primarily focused on team and organisational learning. Therefore, from the individual learning perspective, assessing whether objectives were achieved is somewhat problematic. Yet, according to Joldersma (2000), it is the players’ acting and thinking that influences learning at the organisational level.

The questionnaires reveal that most individuals considered the simulation exercises a very useful learning experience. It would nevertheless be too simplistic to base any conclusion on these findings alone. On several occasions individual members appeared lost, and during both initial debriefs these observations were confirmed. It is therefore questionable as to whether such conditions still provide a useful learning environment.
In an experiential learning environment individuals do not merely learn from their experience; instead they learn by reflecting on their actions. This makes learning more personally meaningful, holistic and lasting. Neither the debriefings nor the evaluation reports paid sufficient attention to this. It is therefore questionable as to whether the Bank’s culture inhibited individuals to be specifically addressed. The pre-exercise briefing stated that individuals would not be singled out during the debriefing. Although this may be perceived as a measure to comfort exercise players, at the same time it highlights a potential shortcoming of the training.

2.2.3 Opportunities for team learning

The temporary nature of crisis management teams makes learning at this level an extremely complicated issue. Although the individuals’ experience is based on working as a team, the value of learning is uncertain. While the exercises have provided opportunities for individuals to operate as a team, some may never be confronted with a real crisis, while others may need to work with people never met before. Arguably this observation is significant in that it would imply specific training requirements. However, fulfilling them would be difficult because, with the number of staff with designated crisis management roles exceeding one hundred, training in a variety of team combinations would simply not be cost-effective.

Secondly, although the exercises provided good opportunities for advanced team decision-making, the apparent lack of reflection on performance may affect the learned experience. Furthermore, the exercise observations described earlier revealed the application of different styles of leadership; however, it is difficult to draw any conclusions from this. Belbin (1981, 1993) found that no difference in team performance could be observed between teams with a strong leader and those with a poor leader. Although it is acknowledged that a relationship between leadership and team performance exists, it is suggested that the combination of the type of leader and the type of team seems a more determinate factor for performance.

2.2.4 Opportunities for organisational learning

The findings illustrate that not only did each individual exercise provide opportunities for organisational learning, but the sequence of exercises highlighted that lessons were implemented to improve the crisis management arrangements. The objectives of exercise two explicitly addressed the validation of the arrangements that were put in place after exercise one. Each exercise offered those responsible for planning for business continuity and crisis management the opportunity to validate the Bank’s structure and plans. The post-exercise reports display a dominant emphasis on the organisational learning aspects and focus in detail on how the structure could be optimised, and plans made more effective.

Summarising the above findings suggests that evaluating individual and team learning was problematic, particularly in contrast to organisational ones. The exercises provided good opportunities for consultants and those responsible for planning crisis management to learn, evaluate and validate the arrangements and to amend
them where necessary. In part this difference in learning can be explained with Bloom’s (1984) taxonomy of learning. Hermann points out that those who administer simulations are also learners and are like participant observers who ‘both monitor what is going on to enhance the experience for participants and observe the process for new theoretical insight’. This would imply that throughout an exercise, knowledge is acquired at different levels because the base knowledge of participants differs from that of observers. Following Bloom, if objectives aim at enabling participants to acquire knowledge and abilities at the application level, observers, in contrast, may already possess the ability to apply. Hence, their learning would take place at higher cognitive levels – analysis, synthesis and evaluation.

These dissimilar learning experiences have implications for training and it could be questioned whether individual and organisational learning objectives can be supported simultaneously; for instance, the exercises did not provide individual participants with clarity in their roles and responsibilities. However, after each exercise consultants and bank staff were in a position to implement organisational lessons learned and improve the organisation’s preparedness.

Although the analysis of the exercise data highlighted that certain lessons learned were not addressed, the Bank appeared well aware that more effort would be required to address all deficiencies. A short period after exercise two, the Bank commissioned a consultancy to investigate certain aspects of the crisis management arrangements in more detail. Furthermore, a study was conducted into how individuals and teams could be trained to become more competent in conducting crisis management.

2.3 The Bank’s training 1999–2000

During an interview with a staff member responsible for the planning of business continuity and crisis management, it was clarified that after the exercises priorities at the Bank had shifted from a generic preparedness to a more specific Y2K preparedness. Interestingly, when implementing a training programme for Y2K preparedness, the Bank decided in sharp contrast with their previous approach, not to use external consultants. Instead the Bank’s preparedness had reached a level of maturisation that no longer required outside expert support, although it welcomed the continued interest of this research. It was further revealed that during the millennium change-over it appeared that the Bank was well prepared.

In an interview with the Head of Security, it was stated that three factors were conducive to the organisation’s successful learning. First, trust and confidence placed by the management and board of the organisation in those responsible for crisis management. Second, careful selection of individuals responsible for crisis management. Third, an organisational culture and structure that enables effective crisis management to take place. It was further stated that the above factors found their roots in the organisation’s real-world experiences of managing crises and disasters.
3 Case Study III – The King’s Cross Underground fire

3.1 Introduction

On the evening of 18 November 1987 a small fire on the Piccadilly line escalator at King’s Cross underground station was allowed to burn, and resulted in a dangerous flashover that ultimately claimed 31 lives and injured many people. By any account this was a major disaster in British transport history and it resulted in a formal investigation being carried out by the Department of Transport under the direction of Desmond Fennell OBE QC. The data for this study is based on the findings and proceedings of that inquiry – in particular, how these relate to the first hour of an incident.

The King’s Cross underground fire represented an already well-researched case study of events. The inquiry had produced a published and therefore publicly available report (Fennell, 1988). In addition, the transcripts and much of the other data used by the inquiry was available at the Public Records Office in Kew, Surrey. The transcripts comprised of three hundred box files of data, each relating to different aspects of the public inquiry. As well as a transcription of interviews carried out with selected witnesses and consultant experts, copies of letters and reports from all the key agencies involved were included. Contained in the Public Records Office data were a number of other reports specifically compiled for the inquiry by academic and other consultant advisors assisting with the inquiry process. The Public Records Office data was vast in comparison with the final published report.

3.2 Initial results of the modelling analysis

- **The fire itself.** The fire had taken place while the station was very busy and although initially quite small, it had been allowed to incubate to a dangerous flashover point. It is difficult to ascertain precisely when the fire had started or when it was no longer locally manageable. It does, however, appear that initially the fire was so small that it was hard to find by London Transport (LT) staff looking for it.

- **Passengers.** LT staff were first made aware of the fire at 19:29 by a report to the ticket office from a passenger, Mr Squires, and subsequently in a similar manner by a further passenger, Mr Benstead, who also informed other LT staff three minutes after the initial notification. It was not until later that another passenger, Mr Kamoun, managed to raise attention to himself and some nearby police officers, by shouting warnings to other passengers and pressing the ‘STOP’ alarm on the escalator. The extent to which passengers were aware of the fire, and how this affected their subsequent behaviour, is not known other than one further notification of the fire to the booking clerk at 19:32 on which there appears to have been no further action taken. It is interesting to consider why the only passenger action that was taken seriously and responded to was the unorthodox one (shouting and creating a commotion); the other two passengers who raised the alarm in the normal manner by reporting the fire to LT staff were simply ignored.
**LT’s response.** The key feature of LT’s response that emerges from the case study is the apparent inability or refusal to accept the notifications from the public that something was wrong. One important factor was clear: a local solution to the fire may have been possible and LT staff were in the best possible position to effect if not facilitate this. Another pertinent factor was the apparent inability of LT staff to find the fire owing to some misunderstanding about its location. Even when the fire was located by LT staff at 19:38 and unsuccessfully tackled with a CO₂ extinguisher, there was still no attempt made to use the water fogging equipment.

Perhaps the most intriguing aspect of LT staff behaviour to emerge from the case study is the contrast between the extraordinary amount of apparent activity and the total lack of effective response that resulted from it. For example, senior management in other parts of London seemed to be aware of the fire prior to local LT management at the King’s Cross station. Yet low-grade LT staff at King’s Cross appeared to be working closely under police supervision and unknown to their own management at King’s Cross. One can only speculate about the extent to which this may have been a direct result of police behaviour at the scene.

**The police response to the situation.** The police actions can be summarised as three-fold. First, they attempted to ascertain the nature of the situation; second, they made efforts to call for an appropriate emergency service; and third, they took control of the movement of people. The first two aspects of this police response were unproblematic in that they quickly ascertained what was going on and called for the fire service as efficiently as the then technology allowed (going to the surface to use their radio to alert the fire service). However, as soon as the fire was acknowledged by the police they assumed responsibility for the movement of people, giving instructions to LT staff to block escalators and move passengers up from the platform to the surface. This was done by using the alternative Victoria line escalator and via the ticket hall to the surface. The result of this action was tragic. The almost spontaneous decision at 19:39 to evacuate the station by moving passengers in an upward direction, and the decision to shut the Bostwick gates, which connected the London Underground with the two British Rail stations, resulted in a concentration of evacuating passengers passing through the ticket hall. From the timetable of events it is not possible to identify which police officers closed the Bostwick gates, or who saw them do this:

19:41 – One of the sets of Bostwick gates at the stairs leading to the perimeter subway from the tube lines ticket hall was closed by an unidentified police officer or officers.

(Fennell, 1988: 51)

Both of these decisions appear to have been taken by police officers independently and on their own initiative, without reference to either LT staff or management advice.
The fire service response. The response time for the fire service, once alerted, was ten minutes, but time was not on their side as the flashover was about to begin when they arrived. Perhaps the most significant of the fire service actions was to immediately attempt to move passengers in a downwards direction, away from where the fire was actually moving. This was in stark contrast to the police evacuation attempts, which focused on moving people upwards. It would be of interest to know what factors were influencing this decision.

The LT staff response to the fire appears to have been quite inadequate. Their behaviour should, however, be contrasted with two features: how they had reacted to previous fire emergencies and training and how, if at all, they were trained to deal with this type of situation. The key issue raised here for LT staff is the level to which their behaviour on this occasion can be seen to correlate to either experience or training.

This would be dependent on the perceived purpose of one action to be different from that of another. For example, it was clear that a line of action – the calling of the Fire Brigade – was set in motion by passenger Kamoun's behaviour. Yet this may also be interpreted as PCs Bebbington and Kerbey choosing not to attempt to effect a local solution to the fire. In other words, this was a line of inaction. The extent to which this may be due to a 'mindset' on the part of the police officers involved cannot be discounted. Clearly, if the police in this instance considered their role to be one of people control and movement rather than fire control, then this would explain their motives and actions at the time.

This can be further highlighted by considering the discovery that the police action to evacuate passengers upwards had been in contrast to the fire brigade, who on arrival immediately started to evacuate passengers in a downwards direction (Fennell, 1988: 52). Various reasons may account for this, urgency probably being the main one, but the case study does not indicate what communications, if any, were going on between these two services at the time. Having clearly identified an underground hazard, the police action to move passengers in an upwards direction to the surface was in this context a logical one and congruent with training. This does, however, suggest that the police perceived their roles, at that stage, to be one of people managers. However, when this is juxtaposed with the behaviour of fires, for which the Fire Brigade are of course trained, one can see why their reaction was to try to keep passengers below ground, or at least below the fire level.

It is perhaps, in the light of this sort of confusion, more helpful to simply consider actions and not to attempt to speculate whether they are positive or negative until we are clear what terms of reference we are using to make such a distinction. It may prove more useful to consider actions in terms of 'goal orientation'. The fundamental point is that there are likely to be multiple goals that are pertinent at any one time and establishing these goals is only one part of the problem. We also have to recognise that goals are liable to change during the incident.

A further concern was that there might be some process to the inquiry procedure itself. There is a growing literature on the history, functioning and scope of public
inquiries in general, which suggests that they have come to serve particular social purposes. In addition, there is a concern for the legal constraints within which public inquiries operate (Wynne, 1982; O’Riordan, Kemp and Purdue, 1987). Public inquiries collect evidence in a way that is clearly at a variance with the method used by human scientists. Further, and as suggested in this case study, public enquiries have multiple aims, such as public catharsis, apportioning blame and learning. One needs to understand the ways in which these different aims might influence the enquiries’ construction of reality.

3.3 The transcripts

The transcripts included consultant reports on various factors of railway operation, coroner’s reports on the bodies of the victims and correspondence between London Underground and the fire service following previous incidents on the underground system.

The inquiry also appeared to present and select data in a particular way. Consultant ‘experts’ of all types were requested to submit evidence that was organised and segregated along the traditional disciplinary lines of perceived expertise. For example, the social factors relating to the incident were contained in a report prepared for the inquiry by the psychologist David Canter (Canter, 1987). Other reports presented data from a number of perspectives, for example engineering, train design, building structure and behaviour of fires. Reconciling these very different reports, each using their own specialised argot, would have been difficult. These groups themselves submit reports that are the results of smaller inquiries. The impression thus gained is of clearly defined areas of enquiry being competently and comprehensively covered and brought together. For example, one quite copious section of the transcripts is devoted to the design and suitability of underground train carriages for buffet facilities, arguably of questionable importance to the inquiry. Large glossaries of terminology can also be found that provide definitions of the terms used, and also translations of all the glossary terms into the French language. For example:

‘Fire’ – A process of combustion characterised by heat or smoke or flame or any combination of these.

(Her Majesty's Public Records Office, Kew. Core bundle MT 141 110)

Perhaps the most gruesome of these exhaustive reports was the personal nature of the pathologist’s description of the bodies. The use of terms such as ‘slim young woman’ or ‘circumcised young man’ in conjunction with detailed descriptions of how victims’ bodies had been tragically burned and disfigured in the fire brings home the graphic horror of the events.

However, what is quite worrying is the extent to which this type of ‘expert exhaustive enquiring’ may, on the one hand, produce the type of emotional and cathartic information that a horrified public may demand, such as blame, recommendations and heroes, yet at the same time miss some of the valuable but subtle socio-
technical dynamics that facilitated incubation of the incident. By separating the social and technical aspects of the incident as isolated entities, the enquiry was creating a number of realities that it could then adjudicate upon. Clearly, those accounts that appear to be based on fact (technical appraisals), could be contrasted with the subjective accounts (descriptive social features). The temptation to then fit the subjective factors to the factual ones must be a point of speculation.

One needs to contrast the data represented in Fennell’s report with the entire data that was available to the enquiry and consider why only three notifications from the public were considered most worthy of summarising. According to the official chronology, there were three notifications of a fire; the first, by passenger Squires at 19:29, a second, by actions of passenger Kamoun at 19:30 and a third, by passenger Benstead at 19:32.

It is interesting to consider why the Fennell Inquiry decided to select these three notifications and not some of the following, which were available to it from the transcripts. In the Chronology bundle No.111 it states that, between 4 October and 19:25 on 18 October, there were 54 substantiated reports to London Underground about the escalator in question, each by one or more people. These reports described ‘heat’, ‘scorching smells’, ‘burning smells’, ‘sparking’, ‘children playing with matches’, ‘squeaking and screaming noises’ and ‘black smoke marks on the ceiling above the escalator’ (it might be interesting to note the applicability of these to the Public Inquiry’s own definition of ‘fire’). These 54 notifications were themselves selected from a total of 363 reports, which the Fennell Inquiry felt could not all be substantiated.

Clearly, had these notifications been included in the inquiry summary, its subsequent analysis would have looked quite different. The point of fundamental importance here is the basis of the selection process for data to be included in the inquiry report. On what basis were the 360 reports from other members of the public during the preceding 14 days considered to be of less importance? The only criteria that appears to have been applied is whether the warnings were immediately followed by a tragic fire.

A second feature that becomes apparent when reflecting on the case study, and with the benefit of hindsight, is the response of the London Transport staff to notifications of fire. What is originally described as ‘a relatively uncoordinated response’ from LT staff is actually quite the opposite. There was a conscientious passing of information from one member of staff to another – the problem appeared to be the defective safety culture within which they were employed. LT staff appeared to be putting out fires far too frequently. In other words, a task that should be an emergency operation for staff was actually being performed as a matter of routine work. The safety culture of LT staff did not consider fire as a legitimate hazard.

If we are to base our impression on only the three incidents from 363 that Fennell chose, the process of interacting with members of the public reporting fires might well give the impression of concern or at least urgency. However, in view of the number
of fire-related incidents that LT staff had to regularly deal with, these actions become more explicable as ‘normal’ rather than emergency behaviour. It is therefore hardly surprising that the LT staff at the scene chose not to inform the station management of this occurrence and probably on many other occasions.

In further considering the appropriateness of LT staff behaviour it might initially be worth considering the LT instructions to staff about fires:

**IN CASE OF FIRE**

If you discover a fire or one is reported to you:

1. Sound the alarm, by operating the nearest call point; notify the nearest fire warden.
2. Attack the fire, if possible, with the appliances provided but without taking personal risks.

If these instructions are to be taken at face value, then the first instruction was clearly ignored by LT staff. Despite a considerable number of suspected and real fires resulting in 54 substantiated warnings, 14 days passed before a passenger pressed the ‘STOP’ alarm. It is difficult to conceive how the first instruction could be effected with such urgency given the frequency of reported fires taking place in such a busy station. How would LT staff be able to distinguish between the relative urgency of each suspected fire, with so many incidents occurring? The question here is whether LT staff should be put in a situation where they are constantly called upon to distinguish between potential, lethal and other types of fire, or ‘smoulderings’.

Again, if we look at some of the transcripts we can see why LT staff might be reluctant to have acted otherwise. In a section entitled ‘General Principles of Operational Command and Control at Incidents’, written by the London Fire and Civil Defence Authority, there is a letter, from the fire service to LT (CB233), saying that following the experiences of previous fires (Oxford Circus), the fire service should be called even on suspicion of a fire and that there should be no reliance on the two-tier system of hazard management that LT were at that time adopting. The reply from LT (CB2339), signed by a Mr J.T. Cope, stated that LT staff were quite professional and the two-tier system was fundamentally sound, and there was therefore little likelihood of any confusion.

There was also a dilemma between sending for help and obtaining a local solution; both the LT staff and the police dealt with this in different ways. LT staff opted for a solution established through informal practice, while the police opted to send for help. With the benefit of hindsight, it is clear that had these actions been the other way round, the events on that day might have been less tragic. Further, had the fire service been alerted to more of the previous suspected or real fires on that escalator, then it is likely that an internal enquiry may have taken place and the tragic fire could have been avoided.
The portrayal of Leading Railman Brickell as depicted in the inquiry findings is another example of the selectivity of Fennell’s enquiry when dealing with social data. Brickell observed the commotion with passenger Kamoun at 19:30 and then, with no explanation, reappears at 19:36 descending escalator No. 5 and noticing a small fire on escalator No. 4. At the same time a police officer instructs him to send passengers up the Victoria Line escalator. The impression given here is one of a man who did little and only then because the police told him to do so.

In contrast to this, when the transcripts of his interview for the inquiry are read, it is clear that Leading Railman Brickell worked exceedingly well under difficult circumstances.

At 17:15 (16 minutes before he appears in the official chronology) he had put out a small fire on the Victoria Line escalator, this type of small fire being so routine that he had not even bothered to inform the inspector. When he returned a few seconds later to start collecting tickets, he was notified by another passenger of a problem of ‘smoke and smouldering on the bottom of escalator No. 4’. Brickell then stopped collecting tickets and went to investigate. He looked down the three escalators but was unable to see anything owing to the number of passengers using them, but he was able to smell smoke. Mr Brickell then descended to the bottom of the Piccadilly escalator where he found that the escalator had already been switched off and, due to the clearing of people, he could look up and see there was a small fire about two-thirds of the way up. Immediately, Brickell started to block off this escalator without instruction from any police officer. Further, he did not use the water fire extinguisher due to the danger from electricity, and he consulted a police officer who decided not to attempt to put out the fire for the same reason. Therefore, for Mr Brickell (who was not the most athletic man due to his long-standing ill-health) all was done that could be done; it was simply a case of waiting for the Fire Brigade. He then caught a train out of the station to go home, completely unaware of the terrible events above him, which he would only learn about later that night while at home watching the evening news on television.

3.4 Discussion

In order to effectively portray a multitude of organisational processes that are suggested by the response to this crisis and subsequent major disasters, several methodological problems would need to be overcome. A new level of both data quality and technology needs to be available.

The point suggested here is not that the chronology section of the report consciously sets out to misrepresent the truth or reality, or that there was some sort of hidden agenda operating in the inquiry. Rather, that in an event of this scale there are many different accounts of what happened and these are not necessarily compatible with each other. Differing perceptions of the passing of time would exacerbate these differences. This is further complicated by the different backgrounds and world-views of the groups of actors involved, each of which report events in terms of what they perceived to be the crucial factors. The Fennell Inquiry clearly had to eliminate these
differences in accounts in order to produce the summary report, and this required a
process of active discrimination against certain data in favour of others. Where such
discriminations are to be made by an official inquiry process, it would appear that
these are made in favour of expert accounts and at the expense of lay accounts.

It would not be fair to say that the inquiry completely ignored the issue of non-
specialist decision-makers, since a prominent psychologist, Professor David Canter
from Surrey University, was employed to research the behavioural and psychological
aspects of the fire at King’s Cross. Professor Canter also questioned the extent to
which passenger behaviour and decision-making needs to be at least considered in
such enquiries. He points out that the King’s Cross underground station is a complex
set of passageways and escalators, and that many passengers were highly skilled in
travelling through them. Many passengers walked straight into smoke and continued
along well practised routes stopping only because they were blocked or they were
overcome by the fire. Another issue raised by Professor Canter is the number of
fatalities that occurred as a direct result of police unloading trains and evacuating
these passengers up through the station. Clearly, if left on the train, some of these
people might still be alive today.

As well as considering the issue of passenger behaviour, Professor Canter questioned
the interactions of passengers with ‘expert decision-makers’, in particular how they
responded to instructions from police and LT staff. Unfortunately, little of Canter’s
work on passengers appears in the summary report on King’s Cross, and even the
work he was able to do was carried out under less than optimal research conditions.
He states:

> It was not considered appropriate for Professor Canter to interview the
> witnesses directly. This has meant that reliance has had to be placed on
> statements made available and the transcripts of the proceeding of the
> enquiry. In many cases this procedure leads to the evidence taking a form
> which is not optimal from the point of view of valid psychological data.

(David Canter, 1987: King’s Cross Inquiry Transcripts Box No. 112)

The issue of obtaining accurate and reliable accounts of phenomena are, for the
human sciences, an old problem – not least for the field of disaster research. Barry
Turner’s book *Man-Made Disasters* devotes much attention to the use of ‘accounts’
for the post-hoc analysis of events:

> First-hand accounts of disasters are of little direct use for our purposes, for,
> from Pliny onwards, they are accounts of devastating or disruptive events
> from the point of view of victims or near victims; whilst they may provide
> much useful information about human emotions and reactions in moments
> of severe stress, they generally provide little detailed or accurate information
> about the origins and nature of the event which is producing the stress.

(Turner, 1978: 8)
Turner quite aptly develops this argument further by referring to what he calls the ‘genre’ within which different interest groups will report events. He cites journalists as one such interest group displaying a particular approach to the production of accounts of events, by means of contrasting particular stories and reports with other information and events. Medicine is cited as ‘another professional group with an occupational interest in disaster, as are engineers with a ‘genre’ for identifying system failures in physical terms’ (Turner, 1978). In the case of the King’s Cross inquiry’s summary report, we may need to question the ‘genre’ of any particular account of the event. We should acknowledge public inquiries will represent the views of many professional interest groups.

Other factors that might influence the selection of data are the way evidence is presented and the credibility of the presenter. As risk communication theorists might argue, experts (including members of the emergency services) would be familiar with presenting arguments that substantiate their versions of reality; they frequently make such presentations to courts, public bodies and other legal establishments. The credibility of expert accounts would be established through legal precedent and their peer group. Police, in particular, can be regarded as ‘professional witnesses’ in this context. In contrast, lay accounts such as that of Mr Brickell would lack such presentational qualities (this is quite apparent from reading the transcript of his interview at the inquiry), and when competing with non-congruent expert conceptions would be likely to receive a more sceptical hearing.

In terms of the response to the incident once the emergency services were alerted, two issues are of concern. First, what is the frame of reference (or safety culture) of the emergency service involved? Second is the question of power or primacy. We assume here that the frame of reference for the Fire Brigade is to treat the phenomenon, in this case a fire; for the police the issue is to manage people; and for the ambulance service to treat the symptoms (the injured). For the London Underground staff, however, the frame of reference is not so clear, yet this may prove to be the key to fully understanding their behaviour in this incident.

### 3.5 Conclusions

The first section of empirical work would appear to suggest a number of preliminary conclusions. First, there are inherent problems associated with producing any one conception of a disaster. The illusion of an apparent chronological objectivity suggested by the public inquiry, is questionable in this respect, because it may mask the social and psychological processes going on in the crisis.

For example, the issue of looking at both lay and expert conceptions of risk as suggested by risk communication theorists are simply not considered. Lay folk are often missing from expert accounts (the case of Mr Brickell’s account of events is a good example of this). Expert accounts will systematically discriminate (albeit unconsciously) against lay folk by not considering their actions to be important. Yet the behaviour of non-experts will have made a significant impact in terms of the outcome of the incident, in casualties at least. This may be due to our unconscious
desire to emulate previous studies and produce recommendations to improve the actions of the expert decision-maker, without reference to the way these decisions will have been perceived or interpreted by lay folk who will do so with reference to their own agenda.

The second, and related issue is that of multiple realities. There would appear to have been many realities operating simultaneously at King’s Cross. While these realities may not be compatible with each other, they are each valid accounts of events for those who have constructed them. This view of the situation at King’s Cross is congruent with a view held by many risk communication theorists, that expert accounts are liable to disagree (Irwin, 1995; Browning and Shetler, 1992).

Social life is both too subtle and too complex to be reduced to such simplistic analysis. We need to be able to understand the relative meanings and symbolic understandings that are attached to any process by those involved. This must be done through some validating technique, which can distinguish between mere biological action and social significance. This requires the deployment of a qualitative methodology as a prerequisite for understanding the background context of the representations to be analysed. The ethnographic methodology has been used in order to treat the apparently obvious and mundane (in this case expert conceptions) as strange and problematic. Using this methodology, competing accounts from lay persons involved can be given equal weighting.

Third, the apparent inability to declare the danger, despite repeated warnings on the part of London Underground staff, clearly had tragic consequences. Fires were commonplace for them, so much so that actual working conditions had come to include the extinguishing of fires as routine practice. Fires, for London Underground staff, were simply not considered a legitimate threat. This failure to declare is congruent with the concept of an organisational safety culture (Pidgeon, 1991), suggesting that fire was not perceived by LT staff as a legitimate threat.

Therefore, how were London Underground staff at King’s Cross to know that on that occasion they were involved in a much larger event, which would subsequently prove to be overwhelming for their capabilities? Despite some 363 notifications from the public over the previous 14 days about problems with this particular escalator, the London Underground staff’s failure to declare the situation needs to be considered in the context of their organisational hierarchy and safety culture. In this context they had no history of such an incident. Pre-defined categories will play a mediating role in the nature of any response and for London Underground staff, fires meant a routine mode of response. For staff to have responded differently would have required them to break with their own, if some what informal, operating procedures.

A fourth issue emerging from the study of King’s Cross, is that the incident appears to be ill-structured (Turner, 1978: 52). This is because despite an apparently correct emergency response by the police attending, the effect of the crisis was exacerbated. The police, once aware of the fire, took the correct action in accordance with their training and Weltanschauung (worldview). Police evidence to the inquiry suggests
they thought they were taking right and proper action under the circumstances by mounting a full evacuation of the threatened area in question, the station. This evacuation was by all accounts quickly effected by moving people upwards and out of the station. However, the tragic result of this evacuation was to increase the deaths and injuries from the fire by guiding people through the flashover. In a surface geographical context, this police action would have been successful. Only through communication with the specialists in underground fire behaviour could the police have realised the danger at the time.
In this unit you have been introduced to some of the main theoretical literature surrounding organisational crisis management. Organisations are now increasingly having to make plans for the unthinkable, but much more research is required in this area. There are a number of reasons why further research and development might benefit practitioners and theorists. First, while considerable theoretical work has been undertaken on simulations and gaming (for example, aircraft pilot and business training), there is virtually no academic work in the area of BCM. This is despite strong commercial and political pressures on, and within, organisations to run risk simulation scenarios. It is therefore proposed that further research will contribute to both theoretical and practical knowledge about simulated and actual risk contexts. It might also facilitate a framework within which exercises might be evaluated in terms of effectiveness of training. It is argued here that this can only take place if exercises are subject to some theoretical underpinning.

Second, simulations can be used for multiple purposes, such as performance audit and learning about the nature of potential hazards. In addition, simulations can be used as a training device for a number of response contexts. It is argued here that the requirements of emergencies, crises and disasters are distinct in this respect. It is therefore suggested that by being able to differentiate between these goals, exercises could be targeted more effectively at operational and safety requirements.

Third, simulation exercises can be a very expensive instrument both to implement and/or plan. It is therefore proposed that within the context of finite training resources, a clear identification of good simulation practice would be of benefit to practitioners in the field. A further benefit from this research might be the development of guidelines that improve the effectiveness of simulation exercises and the development of an approach to simulation analysis within a risk management context.

Fourth, with the increasing levels of litigation following major incidents, organisations increasingly need to demonstrate to the legal establishment, and to society more generally, that all possible precautions have been taken in order to avert, and where necessary manage, potential hazards. The role of the judicial process and litigation trends have played a major part in constructing contemporary social models of acceptable risk. A massive legal industry has grown around the legal adjudication of risk issues, which the designers of simulation exercises can no longer ignores without liability. One legal criterion is to establish blame, guilt, liability or negligence (Wells, 1995). The ‘no win, no fee’ practice in America has contributed to the generation of
a huge specialised legal industry associated with adjudicating such risk claims. Many American exercise designers now introduce their exercises with a legal disclaimer.

Another mode of involvement for the judiciary can be observed from the large number of public inquiries following major disasters. The role of the judiciary in these contexts has also been subject to some controversy. Public inquiries have a function to establish both causality and blame, and this may pose a dilemma for those giving evidence. The need to tell it as it was may be seriously compromised when personal or corporate identities and liability are at stake. This area of legal interest in risk has also aroused much controversial debate. Questions such as who is to blame, who should be compensated and how can future crises be prevented, highlight the complexity of contemporary risk management and the legal system.

The commercial implications of this legal obligation raises serious ethical questions regarding the ‘expertness’ and ‘motivation’ for running simulations. If simulations are to be used as a form of insurance against litigation, it is important to establish whether these exercises are appropriately valid. It is therefore proposed that this research will also contribute to the study of simulation validation.
11 Bibliography


Quarantelli, E. (1995b). Disasters are different, therefore planning for and managing them requires innovative as well as traditional behaviours. Paper presented at the Third Emergency Planning and Disaster Management Conference, Lancaster University.


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