



18 George Street Edinburgh EH2 2QU

Telephone 0131 477 1234

[www.accounts-commission.gov.uk](http://www.accounts-commission.gov.uk)

[publications@scot-ac.gov.uk](mailto:publications@scot-ac.gov.uk)

ISBN 0 906206 71 5

Price £15.00

---

Glasgow Caledonian University

Cowcaddens Road

Glasgow

G4 0BA

Telephone: 0141 331 3159

ALARMS

c/o Finance service

Fife Council, Fife House

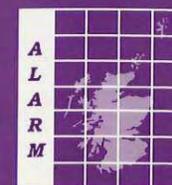
North Street, Glenrothes KY7 5LT

Telephone: 01592 413884

GLASGOW



CALEDONIAN  
UNIVERSITY



SCOTLAND

odds

# Shorten the odds

A GUIDE TO UNDERSTANDING AND MANAGING RISK

JULY  
1999

The Accounts Commission is a statutory, independent body, which, through the audit process, assists local authorities and the health service in Scotland to achieve the highest standards of financial stewardship and the economic, efficient and effective use of their resources.

The Commission has five main responsibilities:

- securing the external audit
- following up issues of concern identified through the audit, to ensure satisfactory resolutions
- reviewing the management arrangements which audited bodies have in place to achieve value for money
- carrying out national value for money studies to improve economy, efficiency and effectiveness in local government and the NHS
- issuing an annual direction to local authorities which sets out the range of performance information which they are required to publish.

The Commission secures the audit of 32 councils, 34 joint boards (including police and fire services), 15 health boards, 28 NHS trusts and six other NHS bodies. Local authorities spend over £9 billion of public funds a year and the NHS in Scotland spends over £4 billion.

This management paper was produced jointly by the Management Studies Unit at the Accounts Commission for Scotland and the Department of Risk and Financial Services at Glasgow Caledonian University. The Association of Risk Managers in Scotland (ALARMS) was also involved at the final drafting stage.

Management papers are intended to support good practice in public sector management by disseminating ideas, approaches and techniques which managers should find useful. The Management Studies Unit and the Department of Risk and Financial Services welcome feedback on this paper. Comments or queries should be addressed to Derek Stewart at the Accounts Commission or Judy Allison at Glasgow Caledonian University.

#### ACKNOWLEDGEMENTS

The quotes attributed to council managers were gathered as part of fieldwork undertaken by Glasgow Caledonian University. The information was collected during interviews with a number of managers in Scottish councils. Both the Commission and Glasgow Caledonian University thank all those who participated for their time and input. Thanks are also extended to the Association of Local Authority Risk Managers in Scotland (ALARMS) for their input and advice during the drafting of the paper.

Glasgow Caledonian University acknowledge the contribution of St Paul International Insurance Company in supporting the fieldwork undertaken.

#### CONTENTS

1 EXECUTIVE SUMMARY	1
2 INTRODUCTION	3
3 WHAT IS RISK MANAGEMENT?	5
4 BENEFITS OF MANAGING RISK EFFECTIVELY	10
5 DEVELOPING A CORPORATE STRATEGIC APPROACH TO MANAGING RISK	12
6 IMPLEMENTING THE STRATEGY – MANAGING OPERATIONAL RISK	20
7 WHAT TO DO NEXT	37
8 CONCLUSION	38
9 ANNEX	39
10 REFERENCES AND FURTHER READING	43

## Executive summary

*"Information gathered from six Scottish councils (of varying sizes) indicated that combined insurance claims\* for 1996/97 alone were in excess of £8.5 million."*  
ALARMS Executive, 1999

This paper is aimed at managers and elected members rather than risk management experts. The paper promotes the concept of risk management and highlights good practice in managing risk effectively. It also outlines the key roles and responsibilities of managers and members in developing and implementing an all-encompassing corporate approach to managing risk. Finally, it introduces a range of tools, techniques and checklists to help managers to manage risk in a systematic way.

The key issues highlighted in the paper are outlined below. Managers should work closely with their council's risk manager in progressing all elements of risk management activity.

- Risk management is the process of identifying risks, evaluating their potential consequences and determining the most effective methods of controlling them or responding to them. The aim is to reduce the frequency of risk events occurring (wherever this is possible) and minimise the severity of their consequences if they do occur.
- Risk management offers a number of benefits to councils. It is not simply about insurance or health and safety. Rather, effective risk management provides councils with a means of improving their strategic, operational and financial management. These are central to Best Value. It can also help to minimise financial losses, service disruption, bad publicity, threats to public health or claims for compensation.
- Risk management should be integral to policy planning and operational management in local government. It cannot be seen as a 'bolt on'. Applying the risk management cycle - identifying, analysing, controlling and monitoring risk - will help elected members and managers make informed decisions about the appropriateness of adopting policy or service delivery options.
- A shared corporate approach is important if risks are to be identified and managed systematically and consistently across the council. A corporate risk management strategy provides a framework to structure this approach.
- All elected members and employees have a part to play. Everyone within the council must be clear as to their particular roles and responsibilities for developing and implementing the risk management strategy.
- Many of the skills and resources needed to manage risk effectively already exist in councils, but they must be co-ordinated to deliver a more structured approach to risk management. Councils need to clearly identify and allocate responsibilities for managing risk in each service area.
- Multi-agency approaches to risk management can also be important. In some instances, joint operational risk assessments may ensure that an overarching risk perspective is taken.

\* Based on amounts paid to date and the estimated value of claims still outstanding.

- Information on past events and 'near misses' is essential if risk is to be minimised in the future. This information should be collected and maintained by managers in a risk portfolio. Relevant information should be shared between services.
- Councils need to reach an appropriate balance between self-insurance of risk and external insurance protection. Input from councils' risk managers will be essential.
- There is a range of tools, techniques and checklists available to ensure that risk is managed systematically. Managers are encouraged to make immediate use of these in their service areas. This paper introduces some of them.

## Introduction

Risk management is a key task for managers in every organisation. In local government, identifying and evaluating the consequences of policies or actions is not always referred to as risk management. However, failure to pay proper attention to the likelihood and consequences of risks can cause the council serious problems. Financial cost, service disruption, bad publicity, threats to public health or claims for compensation are among the most obvious. The effective management of risk is therefore a critical part of councils' approaches to delivering the sound governance element of Best Value.

Risk management is traditionally associated mainly with insurance or health and safety. However, a systematic assessment of risk needs to be undertaken when judging all policy and service delivery options available to the council. For example, what are the risks involved in adopting particular policies on housing repairs? What are the consequences for tenants and the council if things go wrong? What happens to key systems if virus checking software is overlooked? What are the financial and political risks associated with particular investment decisions?

High profile incidents, legislation, litigation and the demise of Municipal Mutual Insurance have all contributed to raising the profile of risk management activity within councils. Fieldwork carried out by Glasgow Caledonian University indicates that risk management is being progressed in an ad hoc and reactive manner in some service areas. This is inadequate. Risk management activity needs to be planned and managed if the risks to councils are to be minimised. Councils' risk managers have a critical role to play in this process. However, responsibility for managing the risks associated with progressing service activities lies with service managers.

The Accounts Commission has previously provided risk management related guidance in the specific areas of managing property risks in schools and road safety defects. This paper provides more generic guidance on the strategic and operational aspects of risk management. It is aimed primarily at managers in all service areas. The sections defining risk management and emphasising the need for a structured approach will also be of interest to chief executives and elected members. It is intended to complement the professional risk management advice available to councils from their own risk managers.

The paper has three purposes. First, it provides an introduction to the concept of risk management. Second, it outlines the key roles and responsibilities of managers and elected members in developing a comprehensive corporate approach to managing risk. Third, it provides service managers with a range of tools, techniques and checklists which will help them to develop a structured and systematic approach to managing operational risk in their service areas.

*"We really need some sort of corporate lead ... someone to say 'this is risk management, this is what we're going to do and these are the benefits'."*

Senior Social Work Officer, 1998

Councils will wish to examine their existing approaches to risk management based on the guidance issued in the paper. Managers are encouraged to make immediate use of the tools, techniques and checklists. This work must be undertaken in close liaison with any dedicated corporate or service risk management officers within the council.

## What is risk management?

*"Risk management is the identification, analysis and economic control of those risks which can threaten the assets or earning capacity of an enterprise."*  
Dickson, 1998

*"No process can be considered to absolutely guarantee a certain outcome since there always exists a probability that an unexpected variable will enter and somehow alter the scenario."*  
Vincent, 1996

*"A difficulty with much of the literature stems from the impression that risk management is a self-contained entity. In reality, it is an integral part of managers' day-to-day activity."*  
Dowlen, 1995

Risk management is the process of identifying risks, evaluating their potential consequences and determining the most effective methods of controlling them and/or responding to them. It is not an end in itself. Rather, risk management is a means of minimising the costs and disruption to the council caused by undesired events. The aim is to reduce the frequency of risk events occurring (wherever this is possible) and minimise the severity of their consequences if they do occur. Even when the likelihood of an event occurring (such as a severe storm) cannot be controlled, steps can be taken to minimise the consequences.

### Defining and distinguishing risks

There are two terms which need to be clarified:

**Hazard** is an event or situation which can cause harm (including ill health and injury; damage to property, plant, products or the environment; production or financial losses, increased liabilities, etc).

**Risk** is the chance, great or small, that damage or an adverse outcome of some sort will occur as a result of a particular hazard.

For example, a trailing cable is a **hazard** which could lead to employee injury. As a result, there is a **risk** of employee injury.

Risk management is very much part of every manager's day-to-day management responsibilities. It is not a 'bolt-on'. It informs judgements about the appropriateness and effectiveness of policy options or service delivery methods. As such, it is integral to both strategic planning and operational management. It will also inform decisions about the level and nature of insurance cover required.

To manage risk effectively, the risks associated with each policy option or service delivery method needs to be systematically identified, analysed, controlled and monitored. This process is referred to as the risk management cycle.

Exhibit 1: The risk management cycle



"... knowledge among senior departmental managers of risk management is sadly lacking. Nobody has ever bothered to explain to them what risk management is and what the benefits are."  
Health and Safety Officer, 1998

"It's about risk management ... not risk prevention or risk removal."  
Depute Director, 1998

### Stage 1 - Risk identification

Identifying and understanding the hazards and risks facing the council is crucial if informed decisions are to be made about policies or service delivery methods. The risks associated with these decisions can then be effectively managed.

### Stage 2 - Risk analysis

Once risks have been identified they need to be systematically and accurately assessed using proven techniques. Analysis should make full use of any available data on the potential frequency of events and their consequences. If a risk is seen to be unacceptable, then steps need to be taken to control it or respond to it.

### Stage 3 - Risk control

Risk control is the process of taking action to minimise the likelihood of the risk event occurring and/or reducing the severity of the consequences should it occur. Risk control usually requires managers to identify and implement projects or revised operating procedures.

### Stage 4 - Risk monitoring

The risk management process does not finish with the risk control projects/procedures in place. Their effectiveness in controlling risk must be monitored and reviewed. It is also important to assess whether the nature of the risk has changed over time.

The information generated from applying the risk management cycle will help to ensure that risks can be avoided or minimised in the future. It will also inform judgements on the nature and extent of insurance cover and the balance to be reached between self-insurance and external protection. Tools, techniques and checklists to complete each of the four stages systematically are introduced in the section on 'Managing operational risk'.

Reference is made throughout this paper to the important role of councils' risk managers. The term risk manager has been used generically. Staff responsible for elements of risk management may be employed in the finance department, health and safety or emergency planning. As individuals or teams, they are generally charged with supporting departments in their attempts to manage risk effectively. It is for each council to decide whether it wishes to establish a dedicated risk manager post at the corporate centre. However, all councils should ensure that they make effective use of the full range of their existing professional risk management experience and resources.

## Categories of risk

Understanding the breadth of hazards facing the council will help managers to identify all of the potential risks associated with providing their services. Hazards and associated risks can be strategic or operational. Sub-dividing these into the following categories provides managers with a useful checklist:

- Strategic - hazards and risks which need to be taken into account in judgements about the medium to long term goals and objectives of the council. These may be:
  - **Political**  
those associated with failure to deliver either local or central government policy, or meet the local administration's manifesto commitments.
  - **Economic**  
those affecting the ability of the council to meet its financial commitments. These include internal budgetary pressures, the failure to purchase adequate insurance cover, external macro level economic changes<sup>1</sup>, or the consequences of proposed investment decisions.
  - **Social**  
those relating to the effects of changes in demographic, residential or socio-economic trends on the council's ability to deliver its objectives.
  - **Technological**  
those associated with the capacity of the council to deal with the pace/scale of technological change, or its ability to use technology to address changing demands. They may also include the consequences of internal technological failures or the Year 2000 issue on the council's ability to deliver its objectives.
  - **Legislative**  
those associated with current or potential changes in national or European Law (eg the appliance or non-appliance of TUPE<sup>2</sup> Regulations).
  - **Environmental**  
those relating to the environmental consequences of progressing the council's strategic objectives (eg in terms of energy efficiency, pollution, recycling, landfill requirements, emissions, etc).
  - **Competitive**  
those affecting the competitiveness of the service (in terms of cost or quality) and/or its ability to deliver Best Value.
  - **Customer/Citizen**  
those associated with failure to meet the current and changing needs and expectations of customers and citizens.

Managing strategic risks is a core responsibility for senior managers in close liaison with elected members. Strategic risk assessments should be undertaken as part of the community, corporate and service planning process and as a key element of service reviews. Strategic risk assessment draws on techniques such as group assessment, brainstorming and SWOT or PESTLE<sup>3</sup> analyses. The tools and techniques introduced in section on 'Managing operational risk' will also be useful.

<sup>1</sup> eg changes in interest rates, inflation, borrowing consent or other responses to the global market.

<sup>2</sup> Transfer of Undertakings (Protection of Employment) Regulations relating to the possible transfer of staff terms and conditions when in-house work is transferred to an external contractor.

<sup>3</sup> Strengths, Weaknesses, Opportunities and Threats; Political, Economic, Social, Technological, Legislative and Environmental.

- **Operational** - hazards and risks which managers and staff will encounter in the daily course of their work. These may be:
  - **Professional**  
Those associated with the particular nature of each profession (eg social work service concerns over children at risk; housing service concerns as to the welfare of tenants).
  - **Financial**  
Those associated with financial planning and control and the adequacy of insurance cover.
  - **Legal**  
Those related to possible breaches of legislation.
  - **Physical**  
Those related to fire, security, accident prevention and health and safety (eg hazards/risks associated with buildings, vehicles, plant and equipment, etc).
  - **Contractual**  
Those associated with the failure of contractors to deliver services or products to the agreed cost and specification.
  - **Technological**  
Those relating to reliance on operational equipment (eg IT systems or equipment and machinery).
  - **Environmental**  
Those relating to pollution, noise or energy efficiency of ongoing service operation.

The categories are neither prescriptive nor exhaustive. However, they should provide a framework for identifying and categorising a broad range of hazards and risks facing each service. Each category cannot be considered in isolation. For example, changes in the TUPE legislation would affect judgements about the risks associated with the *competitiveness* of a service. The loss of a contract as a result of lack of in-house competitiveness may have greater *political, economic* and *social* consequences for the council if TUPE did not apply. Similarly, the *physical* risks associated with the security of a school can have *professional* consequences for teachers fulfilling their day-to-day duties and *financial* consequences for the council as a whole. As a result, managers must consider the risks associated with each of the sub-categories and their inter-relationships if a full risk assessment is to be carried out.

The area administered by one council has been characterised by heavy losses in employment in recent years. A large recycling company plans to locate a new plant in the area, creating 500 jobs and investing in the local transport infrastructure. There will be economic and social benefits to the area as a result. However, there are a number of strategic risks associated with the proposals. Managers need to consider the following issues:

Environmental concerns: research has shown that some uncontrolled emissions leaking from this type of plant can be hazardous. However, experience from elsewhere has shown that the company has a good safety record in controlling these emissions.

Customer/citizen concerns: local residents have raised concerns about noise, chemical pollution and the effects of property prices. A pressure group has been set up and a high profile media campaign is being run.

Political concerns: elected members are being lobbied by the pressure group and the local MSP has been approached to publicly back the campaign.

Decision-makers and managers need to identify each of the risks involved and make informed judgements about their consequences for the council and its citizens.

### Scales of risk

*"In 1992, insurance companies reported that the cost of vandalism in schools was equivalent to £13.50 per pupil, compared with an average of £12 per pupil spent on books."*  
Accounts Commission, 1997

*"At October 1995, the total estimated cost of outstanding (road) safety defect claim settlements during the years 1992/93 to 1994/95 amounted to some £7 million. This is in addition to the £3 million already settled."*  
Accounts Commission, 1996

Two criteria can be used to determine the scale of risk associated with each hazard:

- the likelihood of the risk event occurring
- the severity of the consequences should it occur.

Neither criterion can be taken in isolation. For example, there may be high likelihood of minor vandalism to council property, but the consequences of individual incidences will be small. Similarly, there may be an extremely low likelihood of a major local emergency taking place. However, the consequences of such an event are likely to be far more severe. It is important to consider that small incidents can build up to generate substantial costs.

Concerns and estimates of risk will vary from one stakeholder to another. For example, minor incidents of vandalism in a school may not demand immediate attention by the council. However, they may be a cause of some concern to parents and school staff. As a result, they can damage the image of the council in the eyes of the public.

Each council should quantify the scale of risk involved in each area of its activity. This will be based on consideration of both the likelihood of the risk event occurring and the severity of the consequences. Guidance on how to do this is given in the section on 'Managing operational risk'. The following generic definitions of risk severity may prove useful at this stage:

#### Low

Risks where the consequences will not be severe and any associated losses will be relatively small. As individual occurrences they will have a negligible effect on service provision. However, if action is not taken, then such risks may have a more significant cumulative effect. Examples include minor employee accidents, road defects, missed project deadlines<sup>4</sup>, minor incidents of vandalism.

#### Medium

Risks which have a noticeable effect on the services provided. Each one will cause a degree of disruption to service provision and impinge on the budget. They are likely to happen infrequently and are generally difficult to predict. More than one medium loss each year can have substantial consequences for service provision. Examples might include a major fire, large scale theft, systems failures, incidents of pollution.

#### High

Risks which can have a catastrophic effect on the operation of the council or the service. This may result in significant financial loss, major service disruption or a significant impact on the public. They usually occur infrequently<sup>5</sup> and can be extremely difficult to predict. Examples might include a total systems failure or a major local emergency.

<sup>4</sup> The severity of missed project deadlines can be also be medium or high depending on the significance of the individual project or the consequences of slippage.

<sup>5</sup> In some instances, medium and high risks can occur frequently (eg regular flooding, severe winter weather, etc).

# Benefits of managing risk effectively

"... the direct costs are only the tip of an iceberg. To this sum can be added the substantial costs of administering claims, diverted staff time, and legal costs. Council risk managers estimate that these 'hidden expenses' increase council costs at least fourfold."  
Accounts Commission, 1996

"Between the years 1990/91 and 1992/93, the number of malicious fires was reduced and the cost of repairs was halved from the £5 million incurred in 1990/91."  
Accounts Commission, 1997

"Generally, we find drivers who work in the public sector are safe and responsible. This is why we offer them a 15% discount."  
Zurich Municipal Assistant General Manager, 1999 (LGC Risk Manager, April, page 2)

Effective risk management will deliver a number of tangible and intangible benefits to individual services and to the council as a whole. These can vary in their nature and extent from service to service. However, they will be important to the council's reputation and its ability to deliver Best Value.

#### Improved strategic management

- better informed selection of strategic objectives and associated targets as a result of the risk identification, analysis, control and monitoring process
- greater ability to deliver against more realistic and achievable objectives and targets.

#### Improved operational management

- reduction in interruptions to service delivery
- reduction in managerial time dedicated to dealing with the consequences of a risk event having occurred
- enhanced managerial control as a result of risk identification, analysis, control and monitoring
- a more systematic approach to addressing legislative, regulatory or competitive demands
- improved control of the risks associated with any arms-length or contractual working arrangement
- improved health and safety and the enhanced condition of property and equipment.

#### Improved financial management

- better informed financial decision-making on investment, insurance, option appraisal, etc.
- enhanced financial control as a result of risk identification, analysis, control and monitoring
- reduction in the financial costs associated with losses due to service interruption, litigation, bad investment decisions, etc.
- reduction in insurance premiums and/or direct costs met through self-insurance.

#### Improved customer service

- minimal service disruption to customers and a positive external image as a result of all of the above.

"Almost 5% of local government working time is lost because of accidents and ill health, compared with 3.7% in industry."  
General Manager of XL Prevent Risk Services, 1999  
(LGC Risk Manager, April, page 3)

The Health and Safety Executive carried out a number of case studies to determine the actual cost of accidents at work. The case studies revealed that for every £1 claimed in insurance there were a further £8 -£36 of additional costs to each organisation. These costs included legal fees, managers' time, investigation time, fines and staff absence. Financial costs were not the only issue. Service interruptions also undermined the ability of the organisations to meet their strategic and operational objectives.

Case Study	Loss	Representing
Construction site	£700,000	8.5% of tender price
Creamery	£975,336	1.4% of operating costs
Transport company	£195,712	1.8% of operating costs 37% of profits
Oil platform	£3,763,684	14.2% of potential output
Hospital	£397,140	5% of annual running costs

Source: Health and Safety Executive, 1997

# Developing a corporate strategic approach to managing risk

"Managing risk means dealing with it in all its aspects, not just those which happen to be most familiar, and uniting many different skills in a common effort."  
Crockford, 1986

"If you want to manage risk then you need a strategic plan which outlines what it is you're trying to address."  
Council Head of Service, 1998

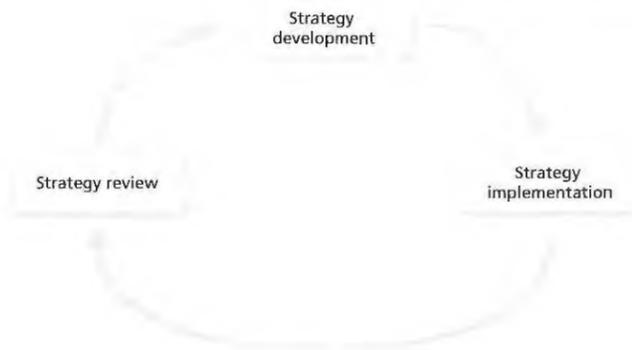
Risk must be identified and managed strategically across the council. The adoption and implementation of a corporate risk management strategy can provide councils with a coherent, consistent and structured approach. Councils' risk managers will have a crucial role to play in supporting the work.

The risk management strategy will:

- clearly identify objectives, roles and responsibilities for managing risk
- improve co-ordination of risk management activity throughout the council
- reduce duplication between departments in managing overlapping risks
- provide opportunities for shared learning on risk management across the council
- offer a framework for allocating resources to identified priority risk areas
- reinforce the importance of effective risk management as part of the everyday work of council employees.

Exhibit 2 outlines the cyclical approach to delivering an effective risk management strategy.

Exhibit 2: Developing a corporate strategic approach



"Managers were apprehensive about the establishment of any strategy that would identify risk management as a separate activity ... (thus) detracting from the integral nature of dealing with risk within overall management practice."  
Dowlen, 1995

"...system aided approaches to risk management were seen as preferable to relying on expertise or intuition alone"  
Dowlen, 1995

The key actions in strategy development are as follows:

- identify which categories of risk should be covered and definitions of scales of risk (high, medium and low)<sup>6</sup>
- agree the SMART<sup>7</sup> objectives and actions required to manage risk, the timetable for strategy implementation, monitoring and review and any dedicated resources required
- agree targets against which the success of the strategy will be evaluated
- identify and agree an approach to risk financing
- agree the roles and responsibilities for risk management strategy implementation and review (discussed later in the paper)
- identify the training required to support strategy implementation.

Strategy implementation is discussed in section 6.

<sup>6</sup> Using the checklist and definitions in the 'What is risk management?' section as guidance.

<sup>7</sup> Specific, Measurable, Agreed (or Action-oriented), Realistic, Timetabled.

## Objectives, actions and targets

Managers developing the risk management strategy need to identify which SMART objectives and actions require to be delivered to ensure that risk is managed effectively. These become the stepping stones in the development and implementation of the strategy. Cost and timetabling targets for strategy implementation and review also need to be specified. Once these have been identified, the implementation of the strategy can be project managed. An illustrative example is outlined below.

Exhibit 3: SMART objectives and actions identified to deliver the risk management strategy

Objective and action	Responsibility	Timetable	Budgetary Implications
<b>To develop a corporate risk management strategy</b>	<b>Corporate management team</b>	<b>Autumn year 1</b>	<b>Nil</b>
1 Prepare a draft risk management strategy in liaison with service departments and external agencies	Chief executive and the risk manager	Summer year 1	Nil
2 Agree the draft risk management strategy and forward to the Policy and Resources Committee for elected member ratification	Corporate management team	Autumn year 1	Nil
<b>To complete dissemination of the strategy across the council</b>	<b>Departmental management teams</b>	<b>Summer year 2</b>	<b>Nil</b>
1 Establish a risk management working group comprising a permanent representative from each departmental management team and appropriate staff from central support services	Corporate management team (in liaison with the risk manager)	Autumn year 1	Nil
2 Ensure that all managers and staff are allocated specific risk management responsibilities as part of the personal development and appraisal process	Departmental management teams	Winter year 1	Nil
3 Include risk management as a core brief item on all departmental team briefings	Departmental management teams (in liaison with the risk manager)	Winter year 1	Nil
<b>To complete implementation of the strategy across the council</b>	<b>Departmental management teams</b>	<b>Winter year 2</b>	<b>£x</b>
1 Ensure that all service managers receive training in risk identification, analysis, control and monitoring techniques	Departmental management teams (in liaison with the risk manager)	Spring/summer year 2	£x
2 Completed risk identification, analysis, control and monitoring exercises	All service managers (in liaison with the risk manager)	Winter year 2	Nil

Targets should also be identified to allow managers to evaluate the effectiveness of the strategy in managing risk in each service area. Challenging but realistic targets should be set with a view to:

- reducing the frequency of risk events occurring (where possible)
- reducing the severity of the consequences.

This information is discussed in more detail in section 6.

Performance against these targets and the objectives outlined on page 15 should be used to evaluate the success of the risk management strategy.

A number of councils have agreed risk management mission statements to express their commitment to the effective management of risk:

#### Risk Management Mission Newtown Council

The council has a moral and statutory duty of care to its citizens, employees and assets. It will meet this duty by ensuring that risk management plays an integral part in the sound governance of the council at a strategic and operational level.

The council's risk manager will support the council in fulfilling its duty. However, risk management is an active process that requires co-operation by all managers and employees. The council accepts that it must make all employees aware of these risks through training and communication.

#### Financing risks

Risk financing is an important element of risk management. The purpose is to reduce the total cost of risk, which includes:

- the amount of uninsured losses, met directly from council funds
- insurance premiums for the external insurance cover obtained
- excesses applying to individual claims
- management and administration costs associated with risk and insurance
- the cost of preventative measures taken to reduce risk.

In the past, most Scottish councils transferred all of their property risks (for example) to insurance companies. In recent years, there has been a move towards self-insurance. Some councils now meet the direct costs of many low value, but more frequent and predictable, losses (eg broken windows, vehicle accidents) from their own funds. This has helped to reduce insurance premiums in some areas. It has also increased the importance placed by the council on reducing such losses in the future.

A council must determine an appropriate balance between losses that are to be financed through external insurance cover, and losses to be met directly from its own resources (self-insurance). The approach selected will be influenced by:

- the council's capacity to meet the direct cost of exceptional and significant value risks
- its previous loss experience (past events will influence both future decisions and the cost of external insurance premiums)
- its understanding of, and attitude to, risk (an informed and proactive approach to risk management will help to identify risks and highlight insurance needs)
- the commercial rates offered by the insurance market.

*"Insurance is reactive, in that you've paid for losses after they've occurred, while risk management should be proactive."*

Oxfordshire County Council Risk Manager, 1999 (*Public Finance*, April, 1999)

*"Sound risk management is about good management throughout an organisation, rather than placing everything on one person's shoulders."*

*Public Finance*, April 1999

*"Lack of commitment from senior managers is the main barrier to council risk management groups achieving their objectives."*

*LGC Risk Manager*, April 1999

*"To deliver risk management you need to take people along with you ... people need to buy into it."*

Council Head of Service, 1998

*"There can be common risks and common methods of controlling them ... regardless of the setting or the service."*

Senior manager, 1998

Risk management and financial services staff will have a critical role to play in helping each service strike a balance between self-insurance and external insurance. Regardless of the balance chosen, effective risk management will help to both reduce the direct costs of self-insurance and minimise the premiums being paid for external cover.

#### Roles and responsibilities

Identifying and allocating roles and responsibilities for risk management is essential if the strategy is to be developed, implemented and reviewed effectively. Key roles are outlined below<sup>8</sup>. Detailed responsibilities associated with these roles are included in the annex at the end of the paper.

The risk manager<sup>9</sup> must play a strong supporting role in helping the council to progress the risk management work. They also have a key role to play in assisting individuals across the council to fulfill their particular risk management roles and responsibilities.

	Role
Elected members	To oversee the effective management of risk by officers of the council.
Corporate management team	To ensure that the council manages risk effectively through the development of a comprehensive corporate strategy.
Corporate risk manager and other central support services	To support the council and its departments in the effective development, implementation and review of the risk management strategy.
Departmental management team	To ensure that risk is managed effectively in each service area within the agreed corporate strategy.
Corporate risk management working group	To share experience on risk, risk management and strategy implementation across the council.
Service managers	To manage risk effectively in their particular service areas.
Employees	To manage risk effectively in their job.

#### Working together across the council

The same hazards and risks may face one or more services within the council (eg vandalism, security, particular health and safety issues or an element of shared professional risk). Formal cross-service working will help to identify and manage these overlapping risks. This can be achieved in part through the establishment of a corporate risk management working group. This should include the risk manager and both permanent and co-opted members of staff drawn from each department (or major service function) of the council. Permanent representatives should have sufficient authority to influence the departmental implementation of the risk management strategy. They will ideally be members of the departmental management team or dedicated departmental risk co-ordinators (where these exist).

<sup>8</sup> These may vary slightly depending on the organisational structure in place at each council.

<sup>9</sup> The risk manager will typically be a member of central support service staff. They are highlighted specifically as a result of their prominent role in managing risk.

*"Finance are buying insurance, but they don't know if Social Work is complying with Health and safety legislation. If we are, then we can do deals to bring premiums down or try self-insurance."*

Social Work Health and Safety Officer, 1998

*"Since 1993, the annual premiums Wycombe District pays to its insurers have dropped from £750,000 to just £190,000. While this is partly the result of making fewer claims, it is also down to recognition of the council's positive approach to managing risk."*

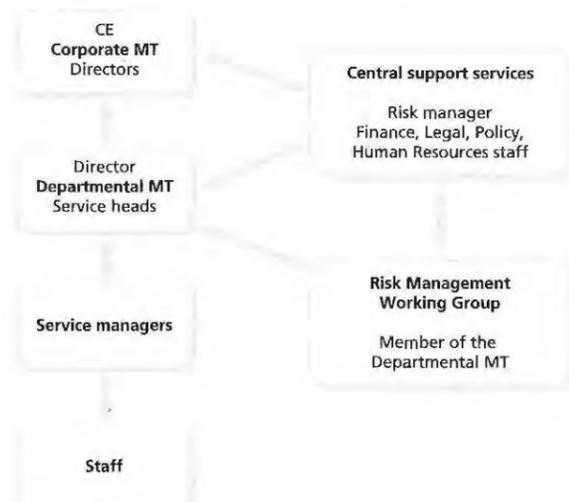
*Public Finance*, April, 1999

Co-opted representatives can be used to provide the necessary expertise to inform the management of risk in a particular area. Their attendance at group meetings will be dependent on the issues under consideration. For example, discussion of risk financing would need input from an appropriate officer from the finance department.

It is important to avoid tying up officer time in discussions on issues which are of direct relevance to only some service areas. Instead, the risk management group could be sub-divided into smaller groups. These could be organised around particular themes (eg children, security, property risk, etc).

Interaction between different tiers of management is beneficial if the strategy is to be implemented effectively and overlapping risks are to be identified and managed. Exhibit 4 models the key inter-relationships within the council needed to support the strategy. The arrows represent the flow of guidance, information and feedback within the 'structure'.

**Exhibit 4: Key officer inter-relationships to support the risk management strategy**



### Working with key partners

Multi-agency approaches to risk management can also be important. In some instances, joint operational risk assessments may ensure that an overarching risk perspective is taken (eg joint housing, health board and social work staff assessment of council run sheltered housing). At the strategic level, it will typically be the responsibility of senior managers to identify and liaise with key partners in managing strategic risk. Service managers will then work with these agencies as part of their operational duties.

Managing some risks will require input from police and fire services. However, other external agencies will have an important role to play in other areas of risk. For example, strategic analysis of risks as part of the community or corporate planning process may rely heavily on input from the local enterprise companies, health boards, Scottish Homes and the private and voluntary sectors.

In the matrix in Exhibit 5, the responsibilities of external partners have been summarised as sharing experience of risks and risk management issues. As far as possible, the council should also:

- seek partners' input into risk management strategy development, implementation and review where relevant
- encourage the adoption of a sound risk management approach in partners' strategic and operational working.

**Exhibit 5: Summary of responsibilities for risk management**

	Develop the corporate risk management strategy	Agree the corporate risk management strategy	Provide advice and support on strategy development and implementation	Implement the strategy	Share experience of risks and risk management issues	Review the effectiveness of the strategy
Elected members		✓				✓
Corporate management team	✓			✓		✓
Corporate risk manager	✓		✓	✓	✓	✓
Departmental management team			✓	✓		✓
Risk management working group			✓		✓	✓
Support services			✓	✓	✓	✓
Service managers				✓	✓	✓
Employees				✓	✓	
External partners					✓	

*"Most managers viewed the need for updating their knowledge to be a high priority ... risk management processes, methods of examining judgement and the nature of risk emerged as priorities."*  
Dowlen, 1995

*"In terms of integrating risk management into managers work, what appeared to cause most difficulty was problems of communication."*  
Dowlen, 1995

*"There's no defined role for me in managing risk ... certainly not that I've been told about. Basically, if it hits my desk then I'll do it."*  
Senior Social Worker, 1998

*"You have to remind people regularly of the skills they have learnt in the past and talk through how these have been used since the training was given."*  
Depute Director, 1998

## Identifying and providing risk management training

Training is essential to ensure that all staff:

- have an understanding of what risk management is and how the authority aims to manage risk effectively
- understand their particular responsibilities for managing risk
- have the necessary skills and knowledge to meet their responsibilities for managing risk.

Building an understanding of risk management can often be tackled through existing training programmes or communications channels. For example, supervisory and managerial skills training often address key components of risk management (eg physical, technological or financial risk). Continued professional development training in each service area will examine particular professional risks. Induction courses also introduce staff to a range of health and safety issues. Team briefings can be used to spell out managerial expectations of staff in terms of risk management strategy implementation. Managers should review current training, induction programmes and communication mechanisms to ensure that the risk management message is being shared effectively. This should be done in close liaison with the council's risk manager.

The training required to ensure that staff have the necessary skills to manage risk will need to be identified. As far as possible, it should be tailored to the needs and responsibilities of each individual taking part. The corporate risk manager will have a critical role to play in identifying and providing the training. External advice is available from ALARMS<sup>10</sup> and professional risk management consultants. The training need not necessarily take the form of expensive courses. Risk managers can systematically disseminate good practice on managing risk. General training on project management, managing information and communicating with staff will help to ensure that the risk management work is undertaken robustly. Councils are encouraged to use this publication as part of any training material.

Councils should identify members of staff with expertise in specific areas who are capable of conducting or contributing to in-house risk management training. These may include in-house trainers, risk managers, health and safety experts and policy, legal or finance staff. Their contribution helps training to be tailored to individual circumstances of the council or the service.

In the area of property risk management in schools the Commission recommended that councils:

- develop training courses for members and key managers who have responsibility for leading the council's commitment to managing property risks
- give head teachers, teachers and support staff risk management training on appointment, and at regular intervals as part of in-service training
- establish training programmes for janitors on the use of new technology, recording processes and awareness of crime related issues
- consider the extension of fire and crime prevention advice to secondary schools as part of pupils' 5-14 development programme.

Source: Accounts Commission, 1997

## Case study: the King's Cross Underground Fire

The King's Cross underground fire broke out near the end of the evening rush hour on 18 November 1987. Thirty-one people were killed and many more injured. The immediate cause of the fire was a lit match which dropped beneath the wooden escalator. Flammable debris and grease were ignited and the fire spread rapidly.

The investigation into fire pointed to a number of failures on behalf of those charged with managing risk.

Recommendations made following a serious platform fire in 1984 had not been acted upon. The investigation concluded:

*"... there was not sufficient interest at the highest level in the (1984 fire) inquiries. There was no incentive for those conducting them to pursue their findings or recommendations."*

Safety professionals within London Underground were junior in status and had little authority to influence the implementation of any recommendations. The investigation concluded that:

*"... the chief fire inspector found the same problems of poor housekeeping and electrical wiring in escalator machine rooms year after year. He duly reported this to his superiors but told the Court that he was powerless to require action to be taken."*

The roles and responsibilities for managing risk were unclear within London Underground. Those responsible for safety believed these responsibilities related to staff safety rather than passenger safety. There was little communication between departments. The investigation concluded that:

*"Compartmental organisation resulted in little exchange of information or ideas between departments, and still less cross-fertilisation with other industries and outside organisations ... it undoubtedly led to a dangerous, blinkered self-sufficiency which included a general unwillingness to take advice or accept criticism from outside bodies."*

The problems of lack of senior management commitment, abdication of responsibility and poor communications have been apparent in other damaging events. Effective risk management should ensure that the likelihood of such events is minimised.

<sup>10</sup> The Association of Local Authority Risk Managers in Scotland

# Implementing the strategy - managing operational risk

"The annual costs of accidents at work in one hospital equated to £397,000 ... 5% of the hospital's annual running costs."  
Health and Safety Executive, 1997

Effective risk management requires managers to identify and manage the strategic and operational risks affecting the council. Strategic risk management tends to be a task for senior managers in close liaison with elected members, risk managers and central support service staff. Operational risks, on the other hand, are those which middle managers and staff will encounter in the daily course of their work. This section takes middle managers through the risk management cycle as it would be applied to their operational activity. Its systematic application is key to the successful implementation of the risk management strategy. The tools and techniques introduced can also be used for strategic risk management.

As discussed earlier, operational hazards and risks can fall into one or more of the following categories:

- professional
- financial
- legal
- physical
- contractual
- technological
- environmental.

Managers must identify and manage operational risk in a systematic manner across all their areas of responsibility. This involves applying the risk management cycle - identifying, analysing, controlling and monitoring the risks associated with the delivery of each element of the service. The information collected at each stage in the risk management cycle should be gathered and maintained in a dedicated risk portfolio. The process of building up the risk portfolio is modelled in Exhibit 6.

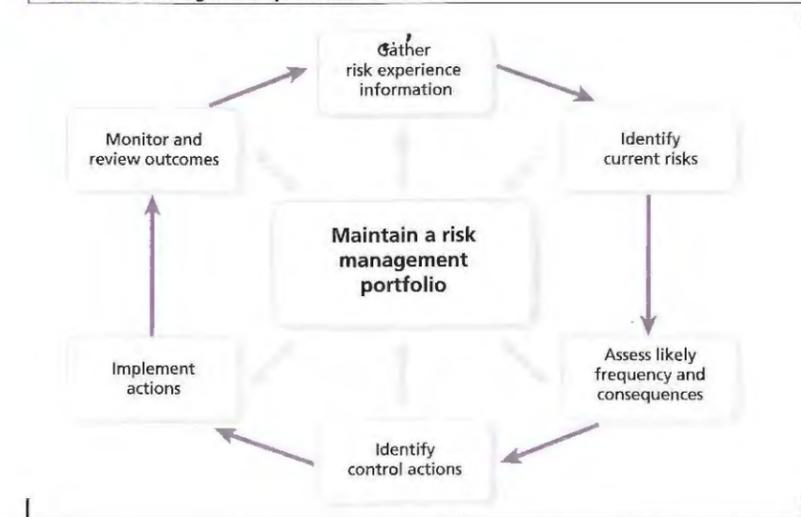
The information will be immediately useful in helping to manage the risks currently facing the service. It will also be an important source of contextual information when the cycle is applied in the future. The portfolio for the service should be continually updated as further risk management work is undertaken. The remainder of this section helps managers to gather this information and use it to manage risk effectively.

Effective management of operational risk can:

- reduce service disruption
- minimise the costs of damages to the council
- reduce insurance premiums
- prevent damage to property or equipment
- reduce the likelihood of injury to citizens and employees
- help avoid litigation and bad publicity
- improve staff morale.

In most councils, professional advice and guidance will be available from the risk manager(s) on how to complete the risk management cycle. The information in this paper is intended to complement that guidance.

Exhibit 6: Building a risk portfolio



Risk experience information can be drawn from a number of sources. These include:

- **risk history information** based on previous damaging events/near misses and their consequences for the council
- **risk experience from elsewhere** based on the frequency and consequences of known events and near misses in other services, councils and organisations.

It is important that managers in each service area pro-actively share relevant information on risks and risk management directly with colleagues in other service areas. Some information will be exchanged through the corporate risk management working group. However, additional direct contact between managers is also essential if shared risks are to be identified and joint controls implemented.

Sophisticated IT based solutions are available to managers to help them build and maintain their risk portfolio. Further information on these is available from ALARMS and the Department of Risk and Financial Services at Glasgow Caledonian University.

"A new workplace risk awareness package is being distributed free to (member) local authorities by ALARM. The package, in a CD-ROM format, is fully interactive, so that anyone with access to a PC can use it at any time."  
Municipal Journal, page 5, 30 April 1999

The matrix below can be used to structure the collection of the information needed by each manager. This will help to ensure that risk is managed systematically in all of the activities under their operational control. The remainder of this paper takes managers through the four key stages of identifying, analysing, controlling and monitoring risk. A worked example shows how the matrix builds in one service area as the four stages are completed.

Service activity/element .....

Categories of risk action	Hazards	Risks	Likely frequency	Severity	Control	Review frequency
Professional						
Financial						
Physical						
Contractual						
Technological						
Environmental						

*"There's no one out there who really knows what kind of things we should be looking at ... I'm not really sure what kinds of things we should be looking at in our service."*  
Head of service, 1998

Risk experience information can be gathered from both internal and external sources. Internally, risk history information gathered by each service in the past will provide an extremely important source of information on the operational risks currently facing the service. It will indicate which incidents have occurred, how often they occurred and what their consequences were for the service and its users. Near miss information will also be useful. In the first instance, this information may not always be readily available to managers in a structured form. The creation of the risk portfolio should help to improve this in the future.

External risk experience information may be identified by professional bodies in particular service areas or by networking with colleagues in other councils. Common risks might also be identified by other services within the council and shared directly through a corporate risk management working group (or similar inter-service arrangement) or via the corporate risk manager.

Specific incidences of risk may be highlighted by high profile incidents or in guidance issued by The Scottish Office, the Accounts Commission or ALARMS. For more generic information, a number of useful risk management websites are listed at the end of this paper.

The group brainstorming and assessment stage<sup>11</sup> will then draw on the risk experience information gathered (both internal and external). This should be fed into the group by the service manager (in liaison with the risk manager). The group should brainstorm all of the potential risks facing the service. The operational risk category distinctions will help to structure the exercise.

Individuals involved in the brainstorming session should have detailed knowledge of the area of service being considered. The risk manager should also be involved. The group can be further supplemented by bringing in additional people with particular perspectives (eg legal, financial, human resource, health and safety or corporate policy). This will help to ensure that the broadest range of risks associated with each service can be identified. Once established, the same group should follow through each stage of the risk management cycle. This will maximise the consistency of approach to each stage.

Risk charting can provide one means of structuring the information gathered during the brainstorming session. This involves categorising information under the following headings:

- Resources** - the assets, people or earnings which could be at risk
- Threats** - anything which could produce an adverse outcome on the resources
- Modifying factors** - those particular features which tend to influence either the likelihood of the event occurring or its severity should it occur
- Risks** - the risks which could affect the resources being examined.

In exhibit 8, the threats to physical assets have been quickly brainstormed to identify risks and the modifying factors which can influence them. The charting process also allows managers to give initial thought to the actions which might be required to counter the threats. These may subsequently become the risk control actions.

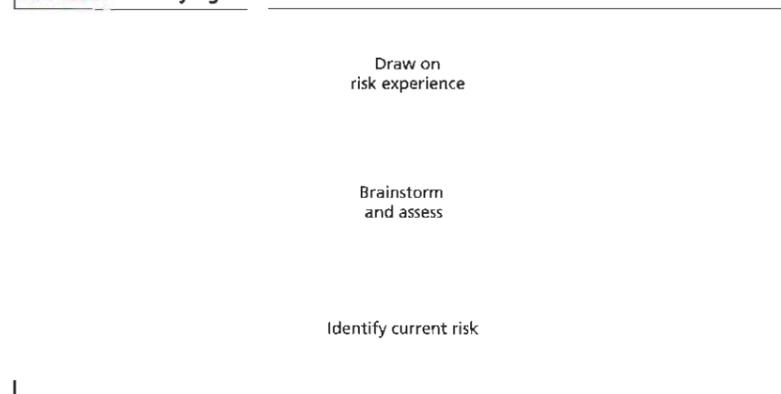
### Stage 1 - Identifying risks

A systematic approach needs to be applied if all operational risks are to be identified and managed. By identifying areas of risk before an event or loss occurs, steps can be taken to prevent the event occurring and/or minimise the cost to the council. Reacting to events only after they have occurred can be a costly method of risk identification.

On most occasions, managers will wish to identify all of the risks associated with their operational activity. However, on other occasions, the focus will be on particular risks or categories of risk (eg as a result of a particular incident, to arrange insurance cover, or to identify IT systems needs). The tools and techniques outlined in this section will help managers to address both.

Exhibit 7 illustrates the process of identifying the current risks affecting the service.

#### Exhibit 7: Identifying risks



Risk identification  
Risk monitoring  
Risk analysis  
Risk control

*"We learn from experience, research and publications. We can then identify common issues we need to be aware of. You learn across care groups and organisations. We want to be able to anticipate rather than solely react as an event arises."*  
Social Work Head of Service, 1998

<sup>11</sup> Tools and techniques to assist in identifying and prioritising issues and ideas are outlined in the Commission's 1998 publication 'Assess yourself'. Copies can be downloaded from the Commission's website.

**Exhibit 8: Risk charting**

Resources	Threats	Modifying factors	Risks
<b>Fixed assets:</b> Land Buildings	<b>Accidental</b> Storm damage Fire Explosion	Construction Location Security	Damage to assets Injury to staff Injury to users Service interruption Financial cost Increased premiums
<b>Fixtures/fittings:</b> Plant and fixed equipment Other equipment	<b>Deliberate</b> Damage Destruction Removal		

Source: Glasgow Caledonian University, 1998

Once the group brainstorming and assessment stage has been completed, the next stage is to gauge whether or not the risks identified currently pose a threat to the service. This can be achieved by completing a **risk audit** for each area of service activity, comparing actual risks on the ground with all of those identified in the group assessment stage.

**Checklists** provide a structured approach to identifying risks during the risk audit. To work effectively, they must be sufficiently specific to ensure that all of the areas of risk identified in the initial assessment are addressed. Two types of checklist are outlined below. The first is based on a tick box approach, with space left for additional comments. The second is based on a more descriptive approach allowing current practice to be assessed against poor, adequate and best practice in risk control. The gap between current practice and best practice will help determine the scale of risk involved.

**Exhibit 9: Fire risk checklist**

Example checklist questions	✓	X	Comments
Is there an extinguisher at each fire point?			
Do all extinguishers have identification numbers and servicing dates?			
Are all extinguishers in working order?			
Are fire hose reels in working order?			
Are fire hose reel instructions on display?			
Are fire exits clear of obstructions?			
Are fire/smoke doors propped open?			

**Exhibit 10: Liability checklist**

Please read the descriptions provided for each of the following activities. For each one, indicate which description most closely reflects current practice. The three descriptions are labeled **A**, **B** and **C**. If **A** is the most appropriate, please place the letter **A** in the column headed **check here**.

Example activity	check here	A sub-standard	B average standard	C high standard
Use of hoists	B	Hoists are rarely in working order	Most hoists are operational	All hoists are operational
Use of face masks and other breathing apparatus	C	Masks and other apparatus are rarely used	Masks and other apparatus are used most of the time	Masks and other apparatus are used at all times
Safety notices and other accident prevention information	A	Safety signs are typically inadequate	Safety signs contain the minimum of information to ensure safety	Safety signs contain additional information to enhance safety

*"It's important to make sure that it doesn't just become a tick box exercise ... a lot of thought needs to go into it or something will be missed."*

Head of service, 1998

Checklists will provide a useful organising framework to structure the gathering of information during **site inspections**. Such inspections allow managers and employees to identify hazards and risks at first hand. These can also be discussed directly with employees or service users at the point of service delivery/use.

Once the risk identification process has been completed, managers in each service area should be able to fill in the first two columns of the risk cycle matrix. The example below illustrates a completed risk identification for Housing estate management. It is not intended to be comprehensive. However, it should give a clear illustration of the types of risk and hazard which might be identified in each service area.

**Exhibit 11: Identified risks - Housing estate management**

Categories of risk	Hazards	Risks
Professional	eg Neighbourhood disputes	Threat to tenant welfare and community safety
Financial	eg Fall in rent payments	Increase in arrears figures
Legal	eg Breach of legislation	Litigation
Physical	eg Violence to staff	Injury to staff
Contractual	eg Sub-contract failures	Threat to service quality
Technological	eg Systems failures	Service disruption
Environmental	eg Heat loss	Cost to tenants

The completed risk assessment table is on page 36.

The following checklist will help managers to ensure that the risk identification process has been completed thoroughly and systematically.

Checklist	✓	X
All elements of the service have been assessed		
Each of the seven categories of operational risk have been covered OR all relevant categories of risk have been examined		
Existing risk history information has been drawn upon		
External sources of risk experience information have been examined		
Brainstorming has been used to help identify potential risks		
Key internal and external partners have been consulted on areas of overlapping risk		
A thorough risk audit has been completed		
Checklists and/or site inspections have been used		
The information gathered has been retained in the risk portfolio		

The second method is empirical, where the probability of an event occurring is directly observed and conclusions drawn as a result. This approach will draw heavily on the risk history information gathered by the council. It will also be informed by the risk experience information gathered from other bodies facing the same sorts of risks. Where risk history or experience information is unavailable, commercial insurance premiums can often provide a useful guide to the probability of an event occurring.

*Scenario planning* is based on an empirical approach. Managers model the outcomes of two or three different scenarios based on their past experience or experience from elsewhere. Judgements as to their likelihood and possible consequences can be made as a result.

The third approach is subjective, where an opinion or hunch will form the basis of judging the likelihood of an event occurring. Managers' experience and input from the risk manager will be extremely important in informing any of the judgements made. In addition, any conclusions which can be drawn from the theoretical or empirical techniques will also be useful. Group assessment can help to ensure that a broadly informed perspective can be achieved.

Once these techniques have been applied, judgements can be made about the likelihood of events occurring. Their likelihood can then be categorised as low, medium or high.

Assessing the potential severity of the consequences should the risk occur involves an element of subjectivity. Group assessment should again draw on risk history and experience information. The severity of the consequences can also then be categorised as low, medium or high.

*"Whether the door is jammed open by a fire extinguisher is the least of my concerns. I'm much more worried about the risks to children."*  
Director of Social Work, 1998

## Stage 2 - Analysing risks

Once risks have been identified they need to be systematically and accurately assessed. The process requires managers to judge:

- the probability of a risk event occurring
- the potential severity of the consequences should such an event occur.

In general, there are three methods which can be used by managers to judge the probability of an event occurring. The first is theoretical and involves using mathematical formulae. It relies heavily on the availability of quantitative information. Theoretically, the probability of an event occurring can take a value between zero and one. Zero indicates that the event has no chance of occurring; one indicates that it is certain to occur. The simplest formula is:

*Probability (of an event) = number of ways an outcome could occur/total number of outcomes*

As a simple example, consider the experiment of rolling a normal six sided dice. The probability of any number turning up can be calculated using the equation as follows:

*P (any number) = 1/6 (or 0.167).*

In reality, a shortage of data often means that probabilities cannot be calculated in this way. Even where they can, some form of qualitative assessment is strongly recommended to supplement the statistical conclusion. This allows a more informed judgement to be made. In the example above, there is a one in six chance of rolling any number. Experience indicates that if the dice is rolled six times, each number is unlikely to come up once.

A number of more complex mathematical and statistical techniques are available to managers. Some useful sources of further reading are detailed at the end of this paper. Professional advice on the use of more advanced techniques will be available from the risk manager.

The next stage is to assess both elements together to identify where control actions are required. The Health and Safety Executive has devised a simple approach to assist in this process:

$$\text{Risk} = \text{likelihood of occurrences} \times \text{severity}$$

'Weighting scores' can be allocated based on the definitions of scales of likelihood and severity outlined on the previous page:

hazard severity: 3 = high  
2 = medium  
1 = low

likelihood of occurrence: 3 = high  
2 = medium  
1 = low

**Exhibit 12: A structured approach to risk analysis**

Likelihood	Severity	Risk= severity x likelihood
Low (1)	Low (1)	1
Medium (2)	Low (1)	2
High (3)	Low (1)	3
Low (1)	Medium (2)	2
Medium (2)	Medium (2)	4
High (3)	Medium (2)	6
Low (1)	High (3)	3
Medium (2)	High (3)	6
High (3)	High (3)	9

The benefit of this approach is that it is relatively simple to understand and use. It does not automatically identify which areas of risk require greatest attention. However, it will help to inform discussion about which risks are most significant and what action is required to address them. In the example above, the risks scoring most points are likely to be those most demanding some form of control action. Managers should examine all of the risks before discounting action, with those where consequences are medium or high being given particular attention. As mentioned earlier, where relevant, managers should also assess the cumulative severity of repeated events rather than solely each event in isolation.

As a result of the risk analysis, the next two columns of the matrix can be completed.

**Exhibit 13: Analysed risk - housing estate management**

Categories of risk	Hazards	Risks	Likely frequency	Severity
Professional	eg Neighbourhood disputes	Threat to tenant welfare and community safety	M	L
Financial	eg Fall in rent payments	Increase in arrears figures	M	H
Legal	eg Breach of legislation	Litigation	L	M
Physical	eg Violence to staff	Injury to staff	L	H
Contractual	eg Sub-contract failures	Threat to service quality	L	L
Technological	eg Systems failures	Service disruption	L	M
Environmental	eg Heat loss	Cost to tenants	M	M

The completed risk assessment table is on page 36.

The following checklist will help managers to determine whether or not a systematic approach to risk analysis has been applied:

Checklist questions	✓	✗
Group assessment has been used to inform the risk analysis		
Risk history and experience information has been examined		
The frequency of all identified risks has been assessed		
The severity of the consequences of each risk has been assessed		
A decision has been reached about the need for action associated with each risk		
Checklists and/or site inspections have been used		
The information gathered has been retained in the risk portfolio		

Risk identification

Risk monitoring

Risk analysis

Risk control

### Stage 3 - Risk control

Risk control is the process of taking action to minimise the likelihood of the risk event occurring and/or reducing the severity of the consequences should it occur. There are three options for controlling risk.

#### 1 Avoidance

Risk avoidance involves the council opting not to undertake a current or proposed activity because it believes it is too risky (recent examples include councils ceasing to use genetically modified ingredients in school meal preparation; or opting not to install sunbeds in council leisure centres).

#### 2 Reduction

Risk reduction is dependent on implementing projects or procedures which will minimise the likelihood of an event occurring or limit the severity of the consequences should it occur. These actions fall into one of two categories:

- pre-loss reduction actions aimed at reducing the likelihood of a damaging event occurring (eg installing CCTV to deter theft or arson; or using IT virus control software to protect systems).
- post-loss reduction actions aimed at reducing the consequences of the damaging event should it occur (eg ensuring that there are effective fire doors or operational sprinkler systems to slow down the progress of a fire; or regularly backing up IT files to minimise the consequences of systems failure).

To reduce the risk of back injury, the Social Work department had clear lifting and handling procedures. We felt we could reduce the risk further if staff who were to carry out these procedures were vetted to make sure they were not susceptible to back injury. Any employee carrying out the tasks who was identified as being susceptible could then be allocated other duties. We felt it extremely important to document the procedures, carefully making note to include all members of staff in this assessment. We believed this would reduce both the likelihood of litigation in the future and the size of awards should any case reach that stage. *Risk Manager, 1998*

#### 3 Transfer

Risk transfer involves transferring liability for the consequences of an event to another body. This can occur in two forms. Firstly, legal liability may be transferred to an alternative provider under contractual arrangements for service delivery. For example, the conditions of contract for a tendered service may specify that the professional, financial, and physical risks associated with service delivery are borne directly by the successful contractor. Contractors will price the contract based on their level of subsequent liability. The risk to the council will then be mainly contractual. Similar risk transfers occur in many private finance initiative (PFI) projects.

Secondly, the costs associated with a damaging event may be reduced by transferring some or all of the financial risk to external insurance companies. The main financial cost to the council of managing the risk will then relate predominantly to insurance premiums and excesses. As outlined earlier, councils need to reach a balance between self-insurance (meeting the direct costs of many low value, but more frequent and predictable, losses from their own funds) and external insurance cover.

We were suffering high levels of minor damage to vehicles due to driver error. The premiums were becoming pretty expensive. We decided to self-insure and recharge departments the full cost of any damage done to the vehicles. This sanction, combined with driver training programmes, brought a substantial reduction in both accidents and losses. *Risk Manager, 1998*

Managers must judge which courses of control action are the most appropriate to address each of the risks they have identified. Group assessment should again draw on the risk experience information and external sources of good practice in risk control. Input from risk managers and support services is extremely important in assessing the options for risk control and the feasibility of the control actions proposed. Managers should consider what incentives and sanctions might be applied to ensure the adoption of the control action.

Note that there may be some occasions where joint action with key partners will deliver more effective control of risk than the council acting alone (eg working with police and fire services to reduce crime and vandalism in schools or working with health boards to reduce risks to vulnerable tenants in sheltered housing). On other occasions, strategic decisions may reduce or alleviate operational risks being faced on a day-to-day basis (eg housing stock transfer to free-up additional resources for investment and physical improvement).

Risk experience information will help managers to judge the cost effectiveness of any actions proposed to manage risk. The cost/benefit of each control action must be assessed. These benefits will not always be solely financial. Managers need to use their own professional knowledge and experience to judge whether the financial cost of risk control is justified in terms of non-financial benefit to the council. On occasion, managers may conclude that the cost of the control action may outweigh the benefits which will accrue to the council as a result of the action being taken. In such instances, all (or an element) of the risk is **retained**.

#### Exhibit 14 - Key questions for a initial analysis of costs and benefits

- Will running costs go up or down?
- What capital investment will be needed?
- What other costs will there be?
- What benefits will stakeholders see?
  - what will happen to service levels?
  - what will happen to service quality?
  - will there be any other benefits (tangible or intangible)?
- What are the risks involved in progressing the option?

Source: Adapted from the Accounts Commission, 1999

*"Cost/benefit analysis can take half an hour to do, or can take months. Its depth will depend largely on the scale, importance and riskiness of the options."*

Accounts Commission, 1999

*"It may be necessary to spend to save, but the measures put in place must be cost-effective. There is no point in spending more controlling a risk than it is ever likely to cost ... control measures do not always require large sums of money."*

Accounts Commission, 1997

"The Pedestrians Association said councils pleaded poverty when asked why pavements went unrepaired, but claim injuries cost them approximately £500 million a year."  
BBC Report, 1998

Control projects may often require initial expenditure to generate future savings. For example, a review by the former Grampian Regional Council of a CCTV pilot scheme in one of its secondary schools found that this pre-loss reduction system was likely to pay for itself in three years by reducing the cost of vandalism repairs. Note that service disruption would also be minimised by reducing damage to property and equipment.

The system was installed in July 1991 at a cost of £32,500.

Financial year	Vandalism repair cost (£)
1989/90	13,800
1990/91	14,835
1991/92	8,150
1992/93	2,650

Source: Accounts Commission, 1997

The following records were collected in the United States. They indicate the importance of automatic sprinklers as a post-loss reduction method. The average fire losses were 39-73% lower in buildings with automatic sprinklers.

Estimated reductions in average loss per fire 1982-1991

Property use	Without sprinklers	With sprinklers	% difference in loss
Public service provision	\$16,100	\$6,200	61%
Health care and correction	\$2,400	\$800	65%
Food and beverage	\$15,100	\$4,100	73%
Offices	\$16,400	\$6,400	61%

Source: Accounts Commission, 1997

Following the risk control stage, managers will be able to complete a further column in the matrix. In the worked example:

**Exhibit 15: Identified control actions: Housing estate management**

Categories of risk	Hazards	Risks	Likely frequency	Severity	Control action
Professional	eg Neighbourhood disputes	Threat to tenant welfare and community safety	M	L	Mediation service already in place
Financial	eg Fall in rent payments	Increase in arrears figures	M	H	Strategy already in place
Legal	eg Breach of legislation	Litigation	L	M	Policies/procedures manual already issued
Physical	eg Violence to staff	Injury to staff	L	H	Personal alarms for staff
Contractual	eg Sub-contract failures	Threat to service quality	L	L	Draft contract default and withdrawal procedures
Technological	eg Systems failures	Service disruption	L	M	Procedures to back-up all systems from the central server
Environmental	eg Heat loss	Cost to tenants	M	M	Energy efficiency guide to be produced and issued to all tenants

The completed risk assessment table is on page 36.

The following checklist will help managers to ensure that the risk control stage has been complete systematically.

Checklist questions	✓	X
Each risk identified as requiring action has been addressed.		
Decisions have been made as to whether all or part of each risk is to be avoided, reduced, transferred or retained.		
A project or revised procedure has been identified where appropriate.		
A cost/benefit analysis of action versus outcome has been completed.		
The proposed action is SMART.		
The resources required to implement the action have been allocated.		
A project plan or revised procedure has been communicated to employees and users.		
The information has been retained in the risk portfolio.		



#### Stage 4 - Monitoring and review

The risk management process does not finish when the risk control actions have been identified. There must be monitoring and review of:

- the implementation of the agreed control action
- the effectiveness of the action in controlling the risk
- how the risk has changed over time.

The identified control action should always be SMART. It should be clear what specific action should be completed by whom, at what cost, and by what deadline. Managers must monitor the implementation of the control action to ensure that responsibilities, deadlines and costs do not slip. The council should also take steps to ensure that the control action contributions of external partners are also being implemented as agreed.

A council roads department had identified a particular junction as being dangerous. As a result, it was agreed that alterations should be made to make the junction safer. Ten months later an accident occurred at the junction. A motor cyclist was seriously injured when he collided with another vehicle. He sued the driver and the council. During the proceedings it was discovered that the member of council staff who called for the alterations to the junction had moved department. The implementation of the agreed action did not occur as a result. The council was held liable.

The effectiveness of the control action will be judged on the basis of its success in reducing the frequency of an event (where this is possible) and/or minimising the severity of the consequences should it occur. These judgements will be informed by comparing the frequency and consequences of future risk events with:

- past events prior to the control action being taken (drawn from the risk history)
- the frequency and severity of similar events elsewhere (drawn from experiences in other services, councils or other organisations)
- any targets set by managers relating to expected frequency or predicted severity (typically informed by drawing on the first two bullet points).

In addition to setting targets for improvement as a result of the risk control action, managers should also work closely with the risk manager to identify related risk parameters. These will be the levels (of frequency and/or consequence) which will trigger some form of managerial action if breached. All employees must be made aware of the risk parameters and the action to be taken if they are breached.

Past experience suggests that a leisure centre manager in one council can anticipate approximately ten incidences, of minor vandalism each month. Monitoring indicated that actual incidents exceeded 15 on a consistent basis. The centre manager decided to take some form of control action as a result. In this instance, 15 had been the *upper* parameter which triggered action if breached. In other instances, frequency or consequences consistently falling below a *lower* parameter may indicate an opportunity to relax a control action. In the example, monthly incidences of vandalism subsequently fell below five on a consistent basis following implementation of the control action. As a result, the centre manager undertook a further cost/benefit analysis of the control action with a view to diverting resources elsewhere.

Monitoring is also required to determine how the risk has changed over time and if the control action currently being taken continues to be adequate. Managers should be clear as to the cycle for risk reassessment in each service area. Risks identified as 'high' should be assessed on the most regular cycle. Medium or low risks will be reassessed less frequently. A regular reassessment of the entire service should also be undertaken at an agreed interval to ensure that any new areas of risk are identified and the necessary action taken.

The following checklist will help to ensure that the monitoring and review stage is completed systematically:

Checklist questions	✓	X
We are clear as to the responsibilities and timescales for control action implementation.		
We are clear as to the responsibilities and timescales for reviewing control action completion and effectiveness.		
We are clear as to the risk reassessment responsibilities.		
Risk reassessment timescales have been agreed.		
The triggers for action outwith the identified cycle have been agreed and communicated to employees.		
The reporting procedures for communicating information on risks are clearly understood by managers and employees.		
The information has been retained in the risk portfolio.		

Following the monitoring stage, the final two columns of the matrix can be completed. In the worked example:

**Exhibit 16: Completed operational risk assessment housing estate management**

Risk category	Hazards	Risks	Likely frequency	Severity	Control action	Review frequency	Triggers for action
Professional	Neighbourhood disputes	• Threat to tenant welfare and community safety	M	L	Mediation service already in place	6 monthly	x disputes
	Anti-social tenants	• Pressure on staff resources	M	M	Introduce a 'good neighbour charter'	6 monthly	Increase of x %
	Crime/disorder	• Fall in demand	M	M	CCTV in high risk areas	6 monthly	Increase of x %
	Poor house condition	• Less desirable stock	L	L	Increased use of safety clothes/equipment	Annually	Increase of x % in risk events
Financial	Fall in rent payments	• Increase in arrears figures	M	H	Strategy already in place (regular visits/counselling for high risk tenants)	Quarterly	Decrease of x %
	Fall in housing benefit forms	• Growth of tenant debt	L	H	Automatic mailing of renewal forms to existing claimants	Quarterly	Decrease of x %
	Higher insurance premiums	• Pressure on staff resources	M	M	Poster/leaflet campaign	Annually	Increase of x %
Legal	Breach of legislation	• Cost to the revenue budget			Self-insurance of fixtures and fittings		
		• Litigation	L	M	Policies/procedures manual already issued to all staff	Annually	x incidences
Physical	Violence to staff/tenants	• Tenant dissatisfaction			Training and induction programme in place		
	Staff/stress	• Injury to staff	L	H	SLA with Legal Services in place	Annually	x incidences
	Vandalism	• Injury to tenants	M	M	Personal alarms for staff	6 monthly	x incidences
	Poor security	• Threat to staff health	H	L	Support service in place	Annually	x incidences
	Fire	• Damage to property and fixtures/fittings	M	L	CCTV	6 monthly	Increase of x %
		• Cost to the council			Security doors and windows on void houses in high risk areas	6 monthly	Increase of x %
	Damage to or theft of fixtures/fittings	• Increased void turnaround time	L	H	Mains operated smoke alarms in all houses	Annually	x incidences
Storm damage		H	L	Pre-removal visits to all properties	Annually	Increase of x %	
Contractual	Sub-contract failures		H	M	Issue 'Winter Freeze' pack	Annually	Increase of x %
	DLO failures	• Threat to service quality	L	L	Draft contract default and withdrawal procedures	6 monthly	x incidences
	SLA failures	• Service disruption	L	L	Introduce penalties for sub-standard performance	6 monthly	x incidences
Technological	Systems failures: - tenant management database	• Tenant dissatisfaction	M	L	Quarterly meetings with central service providers	Annually	x incidences
	- arrears database		L	M	Procedures to back-up all systems from the central server	Annually	x incidences
	- repairs system		M	M			
Environmental	Heat loss	• Cost to the council	M	M	Energy efficiency guide to be produced and issued to all tenants	Annually	Increase of x %
	Fuel inefficiency	• Threat to health of tenants	L	M	Central heating programme to be completed by 2002	Annually	Increase of x %
	Dampness	• Tenant dissatisfaction	M	M		Annually	Slippage in programme cost or timetable by x
	Deterioration in appearance of stock	• Neighbourhood image	M	L	Cyclical repainting programme	Annually	Slippage in programme cost or timetable by x

## What to do next

The important thing now is to get started in developing a systematic approach to risk management. The following checklists can be used by managers to ensure that all of the key stages discussed in this paper have been completed.

### Risk management strategy development checklist

Checklist questions	✓	X
The council is clear about its risk management goal.		
The timetable for strategy implementation, monitoring and review has been agreed.		
Targets have been identified against which the success of the strategy will be evaluated.		
The resources required to implement the strategy have been allocated.		
The council has agreed its approach to risk financing.		
The roles and responsibilities for strategy implementation and review (including those of external agencies) have been agreed.		
The skills, knowledge and training required to support strategy implementation and review have been identified.		
The categories of risk which managers and employees should assess have been clearly communicated.		
The council's risk management experts have been closely involved.		

### Managing operational risk checklist

Checklist questions	✓	X
The risk management cycle has been applied in all service areas.		
All categories of risk have been examined.		
We have consulted key partners on areas of overlapping risk.		
The methods, tools and techniques which should be used to manage risk have been identified.		
All necessary information on managing risk has been communicated to employees and service users.		
We have identified the information we need to collect and maintain in our risk portfolio(s).		
We have identified who we need to share this information with and notified them accordingly.		
The council's risk management experts have been closely involved.		

## Conclusion

Risk management is critical to the effective overall management of any organisation. It should be integral to both strategic and operational management. This will ensure that an effective assessment of risk is undertaken when considering each policy and service delivery option available to the council.

In addition to offering cost savings, risk management can reduce service disruption and enhance the experience of customers and citizens dealing with the council. It can also help minimise the exposure of the council to negative publicity and costly litigation.

Most Scottish local authorities now have an individual or team in place to support risk management work. However, to work effectively, risk management must be integrated into the day to day activity of every member of council staff. Staff should be clear as to their responsibilities and the action they need to take to contribute to the council's risk management strategy. Training and two-way internal communications mechanisms should be in place to spread awareness and provide the necessary skills and knowledge.

This paper has aimed to introduce managers and elected members to the concept of risk management. It has also outlined the key roles and responsibilities of managers in developing an all-encompassing corporate approach to managing risk. Finally, it has introduced a range of tools, techniques and checklists to help managers implement risk management within their service areas. Managers are encouraged to make immediate use of the tools, techniques and checklists.

Many of the skills and resources needed to manage risk effectively already exist in councils. On occasion, these could be better organised to deliver a more structured approach to risk management. Councils are encouraged to review their existing approaches to risk management based on the guidance issued in this paper. All of the risk management work should be progressed in close liaison with the council's own risk manager.

## Annex: Responsibilities for risk management

The following list of responsibilities require to be fulfilled if the risk management strategy is to be effectively developed, implemented and reviewed. They may vary slightly depending on the structure of each organisation.

### Elected members

#### Role

- to oversee the effective management of risk by officers of the council.

#### Responsibilities

- to gain an understanding of risk management and its benefits
- to require officers to develop and implement an all-encompassing approach to risk management.

### The Corporate Management Team

#### Role

- to ensure that the council manages risk effectively through the development of an all-encompassing corporate strategy.

#### Responsibilities

- to gain an understanding of risk management and its benefits
- to develop the corporate risk management strategy in liaison with the corporate risk manager and communicate it to elected members
- to promote and oversee its implementation across the council
- to monitor and review the effectiveness of the risk management strategy
- to agree any inputs and resources required to support the work corporately.

### The Departmental Management Team

#### Role

- to ensure that risk is managed effectively in each service area within the agreed corporate strategy.

#### Responsibilities

- to feed into the development of the corporate risk management strategy from a service specific perspective (through the risk manager and their input into the corporate management team)
- to identify any service specific issues relating to risk management which have not been explicitly addressed in the corporate strategy
- to ensure that the strategy is implemented effectively across its services
- to negotiate departmental budget requirements for risk control projects
- to liaise as appropriate with external agencies in identifying and managing risk
- to disseminate the detail of the strategy and allocate responsibilities for implementation to service managers and staff
- to establish the training requirements of managers and staff with regard to strategy implementation
- to work with the finance department and/or risk manager in assessing departmental insurance requirements.

The departmental management team should identify a senior officer within the department (ideally a departmental management team member) to co-ordinate the department's overall approach to risk management. Once identified, this individual would represent the department on the corporate risk management working group. Many council departments have gone a step further and appointed dedicated officers to co-ordinate risk management or health and safety issues within the department.

### Corporate Risk Management Working Group

#### Role

- to share experience on risk, risk management and strategy implementation across the council.

#### Responsibilities

- to identify areas of overlapping risk
- to share good practice on all aspects of risk management
- to feed into strategy development and review.

### The corporate risk manager and other central support services

#### Role

- to support the council and its departments in the effective development, implementation and review of the risk management strategy.

#### Corporate risk manager responsibilities

- to develop the corporate risk management strategy in liaison with the senior management team and service departments
- to promote, support and oversee its implementation across the council
- to identify any dedicated inputs and resources required to support the work
- to monitor and review the effectiveness of the risk management strategy
- to identify and communicate risk management issues to departments
- to assist departments in undertaking risk management activity through training and/or direct support
- to work with the finance department on insurance issues<sup>12</sup>.

#### Other central support service responsibilities

- to advise corporate and departmental management teams on the financial, legal, human resource and corporate policy implications of strategic and operational risk management decisions
- to support the corporate and departmental management teams in their liaison with external partners when identifying and managing risk.

Central support services' responsibilities for assisting departments to manage risks may be summarised as:

#### Finance departments

- to inform investment decisions made by the council
- to assess the financial implications of strategic policy options
- to provide assistance, advice and training on budgetary planning and control
- to ensure that the Financial Information System allows effective budgetary control
- to negotiate corporate and service insurance cover in liaison with departments.

#### Legal services sections

- to provide legal advice to departments on the legality of policy and service delivery choices
- to update departments on the implications of new or revised legislation
- to assist in the handling of any litigation claims.

<sup>12</sup> The risk manager may be employed within the finance department of many councils with this specific remit

### Human resources sections

- to provide advice on any human resource issues relating to strategic policy options or the risks associated with operational decisions
- to commission and /or deliver risk management training
- to assist in handling cases of work related illness or injury.

### Corporate policy sections

- to provide advice on the implications of potential service actions for the council's corporate goals and objectives.

### Health and safety sections

- to advise on any health and safety implications of the chosen or proposed arrangements for service delivery.

### Service managers

#### Role

- to manage risk effectively in their particular service areas.

#### Responsibilities

- to implement the detail of the risk management strategy
- to recommend the necessary training for employees on risk management
- to maintain a risk management portfolio for their service area(s)
- to share relevant information with colleagues in other service areas
- to feedback on their experience of strategy implementation and perceptions of strategy effectiveness to the departmental management team.

### Employees

#### Role

- to manage risk effectively in their job.

#### Responsibilities

- to liaise with their line manager to assess areas of risk in their job
- to identify new or changing risks in their job and feed these back to their line manager
- to undertake their job within the risk management guidelines set down for them by their manager
- to ensure that the skills and knowledge passed to them are used effectively.

### The Management Studies Unit

Alan Neilson, Head of Unit Telephone: 0131 624 8420  
E-mail: aneilson@scot-ac.gov.uk

Diane McGiffen Telephone: 0131 624 8447  
E-mail: dmcgiffen@scot-ac.gov.uk

Derek Stewart Telephone: 0131 624 8449  
E-mail: dstewart@scot-ac.gov.uk

Mik Wisniewski Telephone: 0131 624 8448  
E-mail: mwisniewski@scot-ac.gov.uk

### The Management Studies Unit Mission

We aim to be a centre of excellence for encouraging continuous improvement in the management of Scottish councils.

We will achieve this through the audit of management arrangements and by promoting good practice

We will be customer driven, innovative and work in partnership with councils, auditors and other bodies.

We aim to ensure that we have the skills and knowledge necessary to achieve this.

### Other MSU publications include:

*Managing people: A self-assessment guide*

*Assess yourself: Using self assessment for performance improvement*

*Planning for success: A review of the audit of Management Arrangements in Scottish councils*

*The measures of success: Developing a balanced scorecard to measure performance*

*Measuring up to the best: A manager's guide to benchmarking*

*Getting to know you: building and using an information portfolio - A guide for service managers*

## References and further reading

*A costly trip: management of road safety defects*, Accounts Commission, 1996.

*A safer place: property risk management in schools*, Accounts Commission, 1997.

*Better together? Making improvements by reconfiguring services*, Accounts Commission, 1999.

*An Introduction to Risk Management*, Crockford N., Woodhead-Faulkner Limited, 1980.

*Risk and Insurance*, Dickson, G. C. A., Chartered Insurance Institute, 1998.

*Risk Management*, Dickson, G. C. A. and Stein, W. M., Chartered Insurance Institute, 1998.

"Learning to manage risk in public services", *Executive Development*, Vol. 8 No. 2, pp.19-24. Dowlen, A., 1995.

*The Costs of Accidents at Work*, Health and Safety Executive, 1996, HS (G) 96.

*Strategic planning and management in local government*, Leach, S. and Collinge, C., Pitman Publishing, 1998.

"Risk is a moral danger: the social and political functions of risk discourse in public health" *International Journal of Health Services*, Vol.23, No.3. Lupton, D., 1993.

"Winning the protection game", *Public Finance*, April 23-29, pp.24-25. Merrick, N., 1999.

"Assessing danger to others in clinical social work practice", *Social Service Review*, Newhill, C. E., 1992.

*Risk, Analysis, Perception, Management*, Royal Society Study Group, 1992.

"Managing risk in public services" *International Journal of Public Service Managers*, Vol.9 No.2, pp.57-64. Vincent, J., 1996.

*Quantitative Methods for Decision-Makers*, Pitman Publishing. Wisniewski, M. 1997.

### Websites

The Accounts Commission for Scotland <http://www.accounts-commission.gov.uk>

The Audit Commission <http://www.audit-commission.gov.uk>

The Association of Risk Managers <http://www.alarm-uk.com>

Association of Insurance and Risk Managers <http://www.airmic.co.uk>

Risk and Insurance Mgt Society <http://www.rims.org/>

Risk Mail Discussion Forum <http://www.riskmail.lsu.edu>

Resources for Risk Management, Safety and Insurance Professionals <http://www.riskinfo.com>

Global Risk Management Network <http://www.grmn.com>

ALARM <http://www.alarm-uk.com>