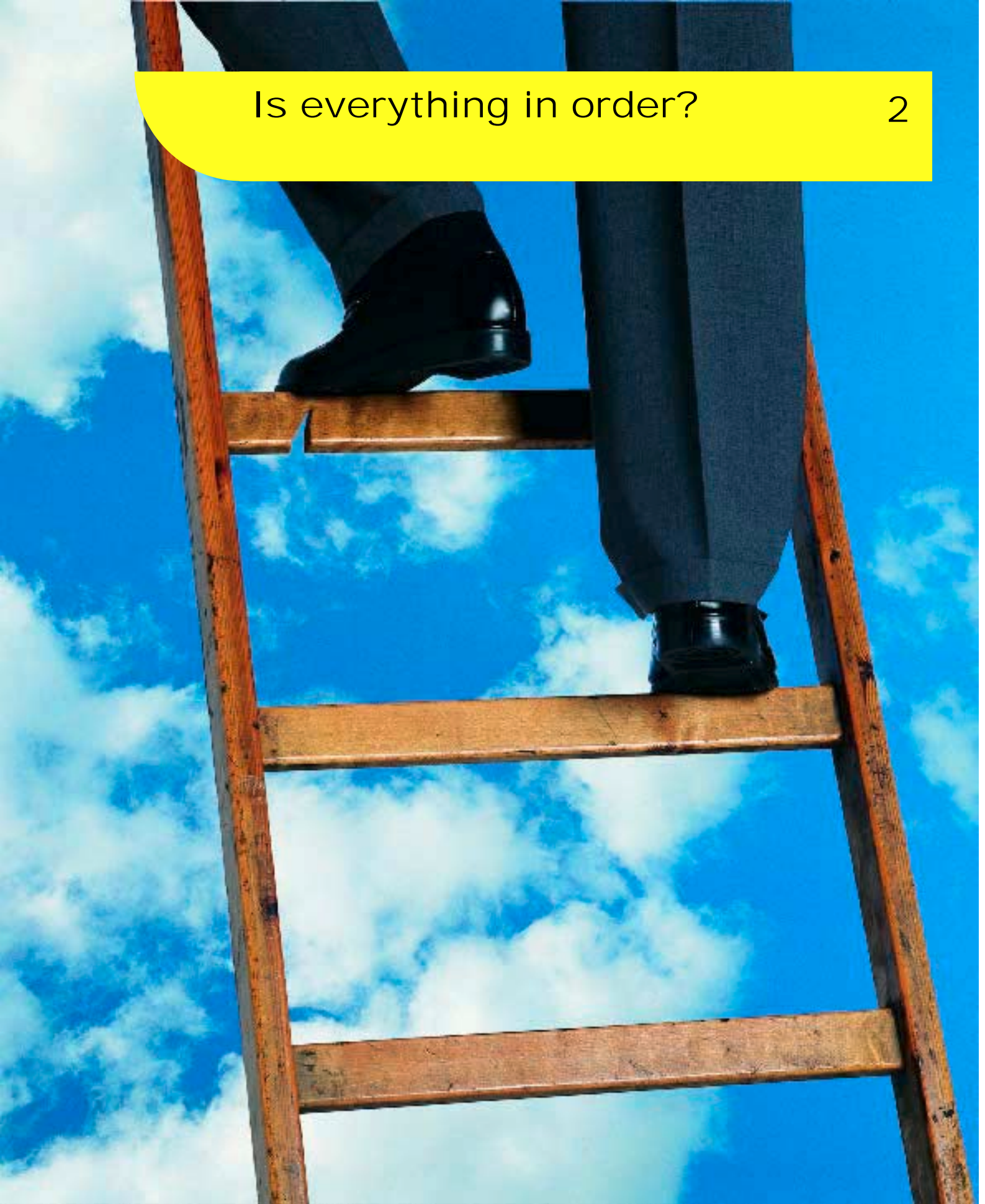


Is everything in order?

2



SME Vulnerability Analysis

SME Risk Management Toolkit

Supported by:



European Agency
for Safety and Health
at Work

This Toolkit has been developed and amended for the UK by the Institution of Occupational Safety and Health (IOSH), from an original concept by VTT, Finland.

The Toolkit is mainly funded by the European Agency for Safety and Health at Work.

This information is provided in good faith, however, it is not comprehensive and IOSH accepts no liability for any losses incurred from its use, howsoever caused.

Is everything in order?

Contents

SME Vulnerability Analysis assists risk management.....	3
What is vulnerability analysis?	4
Vulnerability.....	4
Vulnerability analysis.....	4
Carrying out a vulnerability analysis.....	5
Hazard identification.....	7
Risk assessment	12
Risk management: control measures.....	14
Final word.....	17
Further information	18
Back cover: Summary sheet.....	19

SME Vulnerability Analysis assists risk management

Risk management is work that is carried out to secure a company's profitability and competitiveness, the continuity of its operations and the well being of its employees.

Risk management begins with the identification of hazards. An SME should know the **hazards** related to its activities and operational environment that can be a cause of unwelcome surprises. On the other hand, it is also good to know and take advantage of existing **opportunities** to accelerate success.

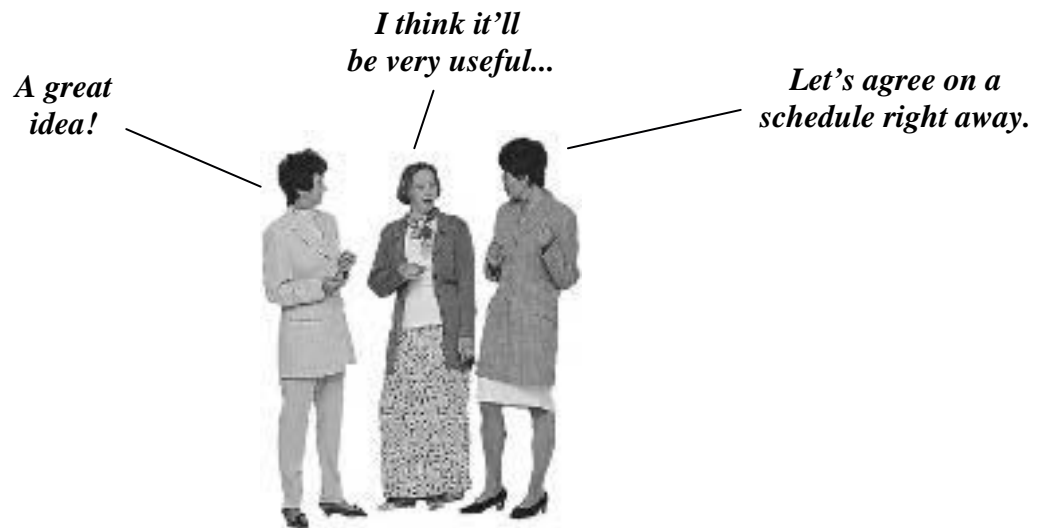
SME Vulnerability Analysis is a systematic tool for the identification of hazards and evaluation of risks related to the activities of SMEs, and for the planning of control measures. SME Vulnerability Analysis quickly provides a **rough general picture of a company's vulnerability**, i.e. the threats related to the continuity of a company's operation.

In the analysis, a company's activities are divided into six main categories, and these are further divided into 30 subcategories. The hazards related to each subcategory are examined through **examples**. SME Vulnerability Analysis is not a rigidly fixed checklist that describes all threats in advance, instead it aims to help **SMEs make their own survey** of the hazards related to their operations, with the aid of the examples provided. SME Vulnerability Analysis provides a systematic approach to this work, as well as tips to stimulate ideas and tools for documentation. All identified problems, and the main control measures to manage them, should be documented.

The different stages of vulnerability analysis are described in this booklet – the identification of hazards and assessment of risks, and the planning of control measures. The SME Vulnerability Analysis **Workbook** contains hazard identification sheets that describe the main risks in many SMEs and gives brief instructions for their use. The Workbook also provides sources of further information and assistance for assessing and managing risks.

SME Vulnerability Analysis has been developed in co-operation with SMEs. It has been observed in practice that this method often helps to reveal problems that can easily be eliminated if control measures are taken. Many control measures can be implemented quickly and at reasonable cost. Some problems, however, may require further analysis, planning and investment.

We hope this booklet helps employees in SMEs to collectively examine and consider the risks involved in their activities and to implement practical control measures for risk management.



What is vulnerability analysis?

Vulnerability

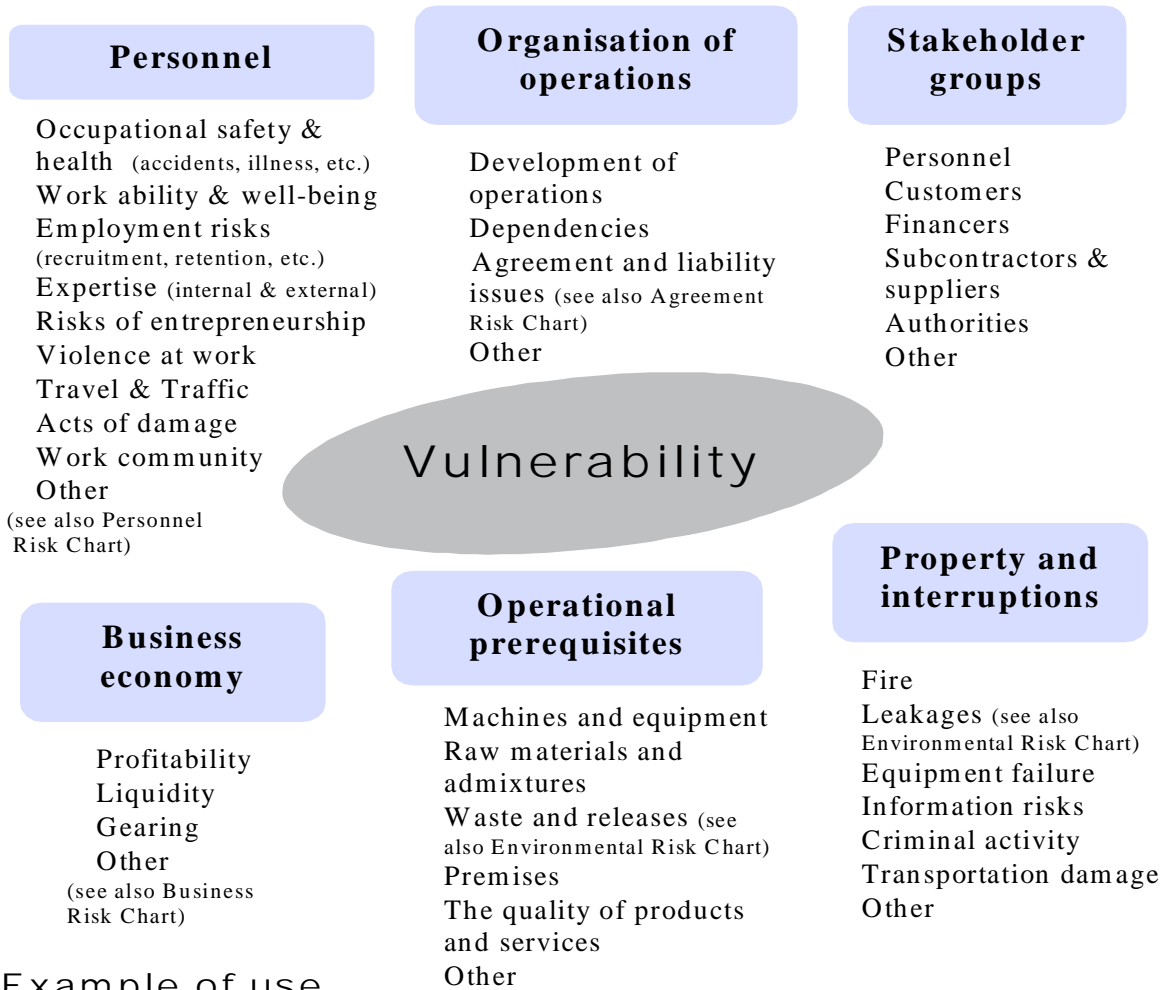
Not all hazards can be eliminated; however, they should be identified and managed as well as possible. The term 'vulnerability' describes the **uncertainty related to risk management that threatens a company's operation**. It is worth learning from experience and by examining past incidents and accidents you can gain insight into your company's strengths and weaknesses.

Vulnerability analysis

SME Vulnerability Analysis is a systematic analysis method for the identification of hazards and documentation of risks related to a company's activities and operational environment, and for the planning of risk control measures. With the help of SME Vulnerability Analysis, a company gets a clear **general picture** of the risks that threaten its operation. For the purposes of the vulnerability analysis, company operations have been divided into six areas:

- € Personnel
- € Property and interruptions
- € Operational prerequisites
- € Organisation of operations
- € Stakeholders
- € Business economy

Each area has been further divided into several subcategories according to the risk chart below:

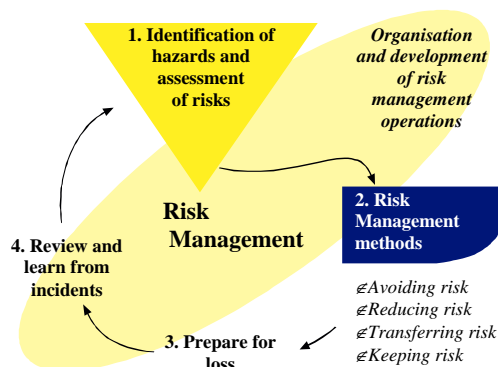


~~X~~ Premises – a significant risk **OK** Customers – issue in order ~~£~~ leakages – does not concern us

Carrying out a vulnerability analysis

SME Vulnerability Analysis is a rough risk management tool that comprises the following phases:

1. Identification of hazards
2. Assessment and prioritisation of risks
3. Management of risks: planning, implementation and the review of control measures



Risk management requires a good knowledge of a company and its operational environment. The examination of vulnerability is most efficient if it is conducted as **group work**, combining the **experience** of different employee groups and key personnel.

Co-operation and the completion of a vulnerability analysis require proper meeting practices and a **person in charge** who is well versed in the basics of risk management and knows how to conduct a vulnerability analysis. In meetings, it is good practice to **write down** issues such as all the hazards identified and the agreed control measures.

Taking a **critical** view of your own methods of operation and an **unprejudiced attitude** towards their development are also good starting points. **Tools** that ensure that the examination is systematic and comprehensive are also needed. SME Vulnerability Analysis contains the following tools:

- € A risk chart and hazard description sheets
- € Instructions for assessing the magnitude of risk and deciding the control measures to be taken
- € A summary sheet

A short **work card** has also been compiled as part of the SME Vulnerability Analysis. The card contains the risk chart and concise instructions for its use.

Circumstances change and risks change with them. A vulnerability analysis should be carried out **regularly** and whenever needed, i.e. when circumstances change or when changes are planned in a company's activities. These plans may concern significant investments, new product ideas or changes in company personnel, for example. In practice, vulnerability analyses should be integrated into a company's **normal work methods**, such as monthly meetings, quality surveys or project planning meetings.

There could be many pitfalls.

Everything will be taken into consideration if we proceed systematically.



Hazard identification

The implementation of the hazard identification stage is described below. When you have become familiar with this chapter you can start the actual analysis with the aid of the Workbook. After the hazard identification stage is completed, you can continue reading from the chapter on Risk Assessment.


The identification of hazards is the starting point of risk management. Unidentified hazards cannot be managed. In SME Vulnerability Analysis, hazards are examined based on a risk chart. A one-page description sheet has been compiled for each of the risk chart's subcategories, as an aid for identifying the hazards and planning the control measures. Using examples, the sheets illustrate the hazards typical to SMEs. The description sheets can be found in the Vulnerability Analysis Workbook. Each sheet contains the following elements:

- € Title of the subcategory
- € Accident example
- € Typical theme-related risks in SMEs, with the aid of examples
- € A quick assessment chart for rough analysis of the risk and control measures
- € Room for the assessor's own notes
- € Tips to support risk management and control planning

An example of a description sheet	Elements to be included						
<p>1.4 Recruitment and assignment</p> <p><i>'Disputes emerged at the workplace when the new foreman was unable to perform as a superior.'</i></p> <p>Unsuccessful choices when recruiting new personnel or rearranging tasks can cause a lot of harm. The work atmosphere may deteriorate, work is not progressed, friction occurs between staff etc.</p> <p>People may be doing the 'wrong job', which means their expertise is wasted and</p> <p>their motivation falls. An overqualified person may easily leave the company to find employment elsewhere.</p> <p>A qualified and well-trained person is not always able to act as a good foreman. In a family business, personal relationships are important - they can be both a threat and a resource.</p> <p>Are there any risks related to the above-described issues?</p> <table border="1"> <tr> <td>No risk</td> <td>œ</td> </tr> <tr> <td>Risks under control</td> <td>œ</td> </tr> <tr> <td>Must be taken care of</td> <td>œ</td> </tr> </table> <p>Tips for processing or solving identified problems</p> <p>It worth examining everyone's special skills and personal wishes and aiming to utilise these in the best way possible. When recruiting new personnel, clarification is needed concerning the kind of expertise required and what skill would provide additional benefits. It may be worth using an external consultant to help find the right person.</p> <p>There may be reasons for requiring new employees to undertake a medical before signing the final employment contract. For example, it would be regrettable to find out after a month that a new employee is allergic to one of the substances in use,</p> <p>You can find further information in the following SME Risk Management Toolkit tools: Key Employees; Individual Risk Management Styles; Special Risks of Entrepreneurship, and Risks of Handing Down the Business to the Next Generation.</p> <p><i>Comments and further details</i></p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>	No risk	œ	Risks under control	œ	Must be taken care of	œ	<ul style="list-style-type: none"> € Title € Accident example € A description of risks typical to SMEs <i>(everyone can read this by themselves and evaluate the possible risks in their own minds)</i> € A quick assessment chart and room for notes <i>(a consensus view of possible risks is written down here)</i> € Tips for processing or solving identified problems € A reference to other tools in the SME Risk Management Toolkit
No risk	œ						
Risks under control	œ						
Must be taken care of	œ						

The descriptions on the sheet are general, and are intended to stimulate ideas about other hazards related to the theme that are not mentioned in the text. The best results are achieved by concentrating on the situation and risks characteristic of your own company and field of operation.

The descriptions on the sheet have been written primarily for companies that are engaged in production activities. However, it is possible to replace the words 'product' or 'production' with the word 'service', after which the description can be equally applied to the trade and service sectors.

 **Consider how the hazards described apply to your company.**

Gathering a workgroup

The first task of the person in charge of the SME Vulnerability Analysis is to gather a group from within the company. The group should possess expertise from all the required fields and different employee groups. Management, production, maintenance, purchasing, sales and administration should be gathered around the same table to examine matters together. Naturally, the size and make-up of the group will be appropriate to the size of the company.

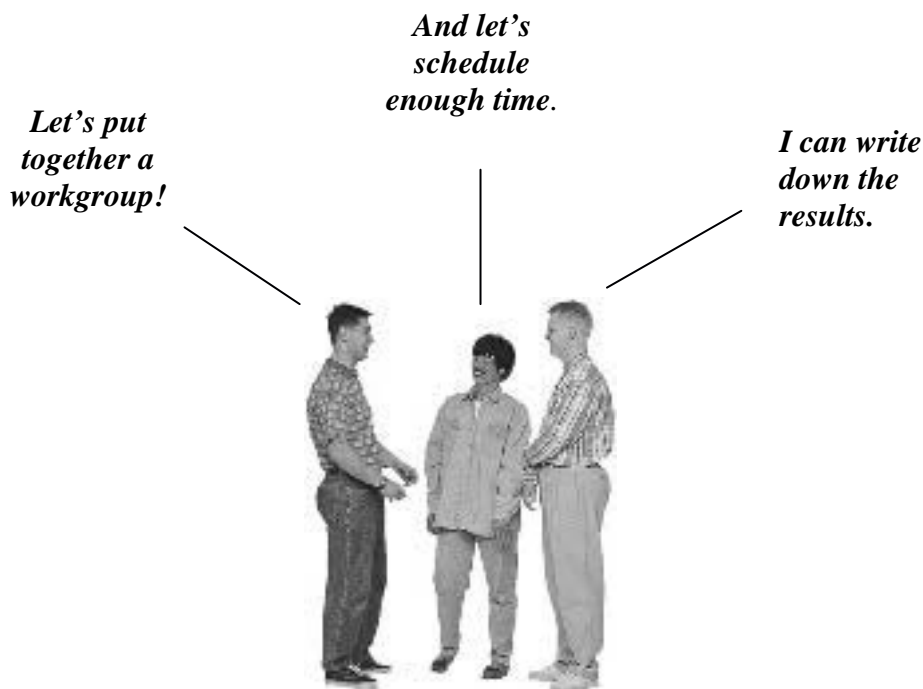
Starting a meeting

At the outset, the meeting should decide the extent of the analysis, the duration of the meeting and who will record the results. Based on experience, it usually takes two to three hours to complete all categories in the risk chart. The extent and duration of the analysis will depend on whether the meeting addresses:

- € the whole company and all its operations, or is limited to a department, activity or task, and also whether it considers
- € all risks or just some of them.

The descriptions have been compiled so that, if needed, it is possible to just examine some of the hazards. The order in which hazards are examined is also flexible. The risk chart and description sheets may contain hazards and examples that are not relevant to all companies, and these can be omitted from the analysis. Sometimes it is appropriate to establish specific workgroups to evaluate different areas or arrange more than one meeting for the same group.

The person in charge makes sure that all participants have the Workbook or copies of the description sheets utilised in the identification of hazards.



Silent brainstorming

The person in charge selects the subject or area to be examined first. Everyone reads the description of the particular hazard and thinks about the issue from a personal point of view. For example, the following questions can be considered:

- ⊘ Has this problem or something similar occurred here or elsewhere?
- ⊘ Have accidents or near misses related to the risk occurred here or elsewhere?
- ⊘ In what kind of situations could a minor accident or problem lead to serious consequences?
- ⊘ Have symptoms of the problem occurred even though an accident has not?
- ⊘ Are there deficiencies in activities or equipment, but accidents have not occurred because employees have learned to live with them?
- ⊘ Has this problem or hazard been discussed before?
- ⊘ Are changes planned in the company's activities or in the operational environment that could have an effect on the occurrence of the problem or hazard?

Discussion

The person in charge opens a discussion on the thoughts that have emerged based on the description. He or she sees that everyone gets an opportunity to voice his or her point of view with regard to the hazards. Views on risk management control measures can also be presented. The person in charge is responsible for keeping the meeting focused.

Accusations, explanations and excuses do not belong in this examination.

Everyone can voice their opinions..

And we'll decide about the measures together.



Conclusion and notes

Guided by the person in charge, the group determines the need for control measures to be taken, based on the following classifications:

- € **No risk.** The risk is so small that it has no significance to the company, or the described problem is not at all related to the company's field or its operations. 'This is not a significant risk in relation to our activities'.
- € **Risk under control.** The issue has been a significant risk to the company but it is under control at the moment. The consequences or probability of the hazard have been reduced. The company has introduced a safer system, for example, or the probability of the event has been minimised as much as possible. 'We are aware of the risk and the issue is taken care of'.
- € **Must be taken care of.** The risk in question is significant and it requires further examination or immediate control measures to be taken. These risks may have previously caused significant damage to the company or they may do so in future. You should also examine risks that are not under your company's direct control, such as new legislation or taxation requirements. It is always possible to be prepared for these risks, too, and changes in circumstances related to them should be monitored. 'Further examination is required, and the issues must be taken care of'.

The conclusion is written down in the quick assessment chart underneath the description:

Are there any risks related to the above-described issues?	
No risk	œ
Risks under control	œ
Must be taken care of	œ

Comments and further details

There is room for additional **comments** next to the quick assessment chart. As part of the examination, you can write down notes about the identified problems in more detail, other information about the issue, and further control measures that may have been agreed on.

Causes and consequences of problems raised during the discussion can also be written down. For risks that are considered to be under control, you can write down the reasoning behind the evaluation. All problem areas that have been marked as requiring control measures are later collected on the **Risk Management Control Measures: Planning, Implementation and Review** Summary Sheet at the end of this booklet.

Choosing a new area or subject

Once one risk area or subject is completed, analysis of the next one starts under the guidance of the person in charge. All areas or subjects, or those that have been agreed on, are processed in the same way.

When agreed hazards or problem areas have been identified, you can continue with the Risk Assessment chapter on the next page.

You are now familiar with the hazard identification stage and you can begin the analysis work with the aid of the Vulnerability Analysis Workbook.

Some important issues came up here. We should continue as soon as possible. How about next week?



Risk Assessment

Hazards or problems that were marked '**Must be taken care of**' during the hazard identification process are examined at this stage. The same group that identified the problems can carry out the examination. If needed, the group can be supplemented with people who know the area best.

When hazards are systematically identified, it is quite common to find so many, that it is not possible to take care of all the issues – at least not immediately. From the point of view of effective risk management, it is important to identify the problems that most **urgently** require control measures.

The **Risk Management Control Measures: Planning, Implementation and Review** Summary Sheet has been compiled to support risk assessment and the planning and implementation of control measures. Identified problems or hazards are first written down in the **Hazard or problem** column. An example of how to fill in the sheet can be found on page 8. The back cover of this booklet contains a blank sheet that can be copied for your company's own use.

*First we have to
fix the biggest
risks.*

*Yes, but next, all
significant risks
must be tackled.*



Issues should be written down on the summary sheet, as concisely as possible – but in such a way that everyone working in the company understands what it is about.

Specifying the causes of hazards

In order to evaluate the magnitude of a risk, it is necessary to examine the causes and consequences of the hazard in detail. These issues have often already been discussed when the hazards were first identified. The person in charge reviews the notes written on the description sheet to the group. Often views on the problem and its causes or consequences can be vague at this stage. In this situation, the issues require further discussion. It is also possible that an external specialist is required.

In the **Causes of hazard** column on the summary sheet, write down the cause of the problem or hazard, or the factors that can contribute to its occurrence. Remember that the same incident can be caused by several different factors.

Specifying the consequences of a hazard

In order to evaluate the magnitude of a risk, the extent and severity of the consequences of the hazard have to be analysed. It is often worth examining the worst possible situation or the realisation of the widest possible consequences. Write down the consequences in the **Worst/typical consequences** column on the summary sheet.

Example of how to fill out the summary sheet.

Risk Management Control Measures: Planning, Implementation and Review

Company	Object of assessment	Group/Assessor	Date	No. of pages:
Equipment Manufacturer Smith & Co	Production units	S Smith, J Jones, H Hill, B Brown	1 June 1998	3

Hazard or problem	Causes of hazard	Worst/typical consequences	Magnitude of risk	Control Measures	Schedule and person responsible	Done
The foreman's computer is broken down due to water damage or fire.	The foreman's cubicle is next to the welding bay and there are sewage pipes in the ceiling that are in poor condition.	If the computer is damaged, all work orders and assembly drawings will be destroyed. Sorting out the matters would require a lot of work.	2	1. A new workroom will be provided for the foreman.	The new workroom will be built in September. Jones takes care of the matter.	OK
				2. A computer firm is consulted about making back-up copies and storing them.	Brown will investigate making back-ups.	OK
				3. Paper copies of drawings will be archived.	Smith makes copies to be archived. Immediately!	OK
Jackson has a long sick leave or retires. No one else can service the new automated machine.	Jackson has already had one heart attack.	If the machine has a fault, help from Germany arrives in approx. a week. The production of "The Widget" will be interrupted.	3	1. A substitute for Jackson must be immediately appointed, who learns how to service the machine. 2. Enquiries about a British service company will be made to the machine supplier.	Jones will immediately select a partner for Jackson from among the staff. Hill will contact the machine supplier immediately.	OK 3.6./ JJ
There is a constant heavy smoky smell in the paint shop.	The new paint smells weird and the air extractor doesn't seem to perform well enough.	The painters may become ill if the new paint is poisonous	3	1. A survey will be ordered from an occupational health expert to examine the reason for the smell and to take new measurements to check the concentrations of air-borne substances.	Smith will contact the HSE for further information.	OK 9.6./ SS

Next meeting and convener: A review at the management group's meeting in December, completion of evaluation in March, convener Smith.

The magnitude of risk

The urgency of risk management control measures is primarily decided by the magnitude of the risk involved.

The magnitude of a risk depends on two factors:

€ **Probability**: The more often or more likely it is that a hazard occurs, the greater the risk.

€ **Consequences**: The greater the loss or the more serious the consequences a hazard can cause when it occurs, the greater the risk.

Risks can be assessed according to many different scales. The table below provides a reference framework to determine whether a risk is large or small. The magnitude of a risk can be expressed in words, such as 'trivial' or 'intolerable', or in numbers, from 1–5 for example.

Estimate and write down the magnitude of the risks you have identified in the **Magnitude of risk** column on the summary sheet. Remember that **assessing the magnitude of a risk does not make the risk larger or smaller!** It only helps to direct risk management control measures correctly.

Probability of event	Severity of harm		
	Slightly harmful	Harmful	Extremely harmful
Highly unlikely	1. Trivial risk	2. Tolerable risk	3. Moderate risk
Unlikely	2. Tolerable risk	3. Moderate risk	4. Substantial risk
Likely	3. Moderate risk	4. Substantial risk	5. Intolerable risk

NB tolerable here means that risk has been reduced to the lowest level that is reasonably practicable
(Source: based on BS8800, Annex D)

Risk management: control measures

Suggestions for control measures to address a problem may have already come up when a hazard was first identified - the agreed measures, responsible persons and schedules should all be written down in the relevant columns on the summary sheet.

Not all hazards can be eliminated, so the implementation of the control measures for those that remain must be prioritised according to the level of risk, with the highest risks being tackled first. When planning risk management control measures and their schedules, it is worth thinking about how these can be integrated into the company's other activities e.g. future maintenance work, investments, training events and employee arrangements.

*This checklist is
really useful...*



Identified hazards can be managed in a variety of ways. The primary management aim is to prevent the occurrence of accidents or to reduce their consequences. Some key methods of risk management are:

Avoiding risk. Avoiding risk is not always possible and can often only be achieved if a company refrains completely from the activity in question. The risks related to a dangerous chemical, for example, can be avoided by changing to a safe chemical, and the risks of export activity can be totally avoided by operating only in the domestic market.

Reducing risk. Reducing risk is an essential part of risk management. Influencing the probability or consequences of an event can reduce a risk. In other words, you have to implement control measures so that the hazard in question occurs as rarely as possible or that the consequences are as small as possible - or preferably both.

Transferring risk. A risk can be transferred to another party **by agreement**. Typical of this are transportation and subcontracting agreements in which a contract can be made with a reliable and professional company to carry out a task that contains a risk. Insurance is also an option. Insurance companies offer an abundance of insurance products for the needs of SMEs. The cost of insurance premiums can be influenced by your management of risk i.e. poor risk management can mean higher premiums. It is not possible to insure against all business risks.

Keeping risk. Risks are a part of business activity. Certain risks are kept and any losses are absorbed by the company (this can happen if risks are not fully identified). A common example of retained risk is the 'excess' that an insured party agrees to pay – this means that they keep the risk that is below a certain monetary value (i.e. the excess).

**Don't be content with the first
idea – take a moment to consider
alternatives!**

Preparing for accidents that may occur despite all efforts is also a part of risk management. It is advisable to plan what actions should be taken in the event of an accident, in order to minimise losses and ensure safe working. With adequate preparation and practice, an appropriate recovery plan can be implemented. Suggestions for the management of identified hazards and problems or their further examination can be found in the chapter **Tips for processing or solving identified problems** at the end of each description sheet.

Responsible person and schedule

To ensure that actions are carried out, their implementation should be assigned to a named a **responsible person** or persons. Not everything can be done immediately, some problems will require further examination, planning or even the arrangement of funding and an **implementation schedule** should be agreed.

Review of control measures

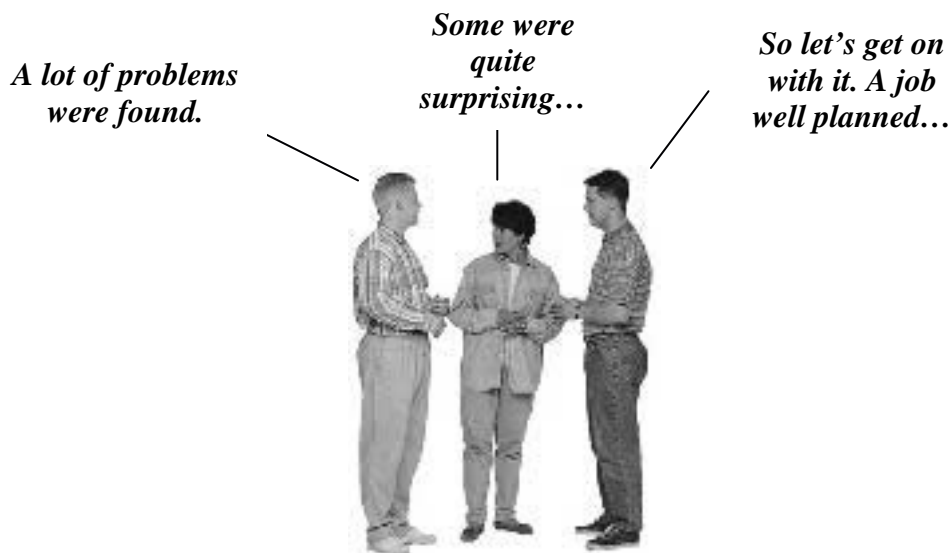
When control measures are agreed, it is good practice to decide how and when they will be **reviewed**. A meeting can be arranged at suitable intervals – once a month or a couple of times a year, for example – to check on the implementation and efficacy of the agreed control measures. Risks that have been adequately controlled should be ticked or marked with OK in the **'Done'** column in the summary sheet.

Processing a new risk

Once a risk has been assessed and the agreed control measures for its management have been written down on the summary sheet, the next prioritised problem area can be examined under the guidance of the person in charge, as presented in the **Risk assessment** chapter. All problems classified as **'Must be taken care of'** are processed accordingly.

Ending a meeting

When all problems classified as 'Must be taken care of' have been processed, the date and time of the next meeting, its convenor, and the distribution of SME Vulnerability Analysis results, will be agreed.



Final word

Once learned, hazard identification and risk assessment should be regularly utilised in a company's operations. When changes in operations are planned or implemented, their effects should also be assessed from the point of view of risk management. Even without definite planned changes, it is helpful to go through issues with the help of the Workbook at least once a year, assessing whether some situations have changed at all, and whether the implemented risk management control measures have been adequate. Any newly Identified hazards should be written down on the summary sheet and processed in the previously described manner.

SME Vulnerability Analysis is a rough risk management tool that quickly provides a comprehensive general picture of the factors that may threaten the well being of a company and its employees. SME Vulnerability Analysis also provides tools for the planning of control measures and the review and monitoring of their implementation.

The **SME Risk Management Toolkit** also provides additional assistance in the form of type-specific risk tools for the identification of hazards and assessment of risks in more detail, and for the support of risk management planning and implementation.

A pessimist believes that nothing can be done. An optimist, on the other hand, believes that nothing will go wrong. A realist knows that something may go wrong but the situation can be managed. **Risk management is realism**, and it acts as a necessary counterbalance to a company's other best resource, optimism.

We wish you every success in hazard identification and risk management

Further information

For those who require more information or assistance, the **SME Risk Management Toolkit** also includes a comprehensive list of additional literature and specialists, and a variety of tools for different areas of risk management.

*Now we are
much better
informed.*

*The whole group
were well
committed to the
analysis.*



Risk Management Control Measures: Planning, Implementation and Review summary sheet

Company	Object of assessment	Group/Assessor	Date	No. of pages
---------	----------------------	----------------	------	--------------

Hazard or problem	Causes of hazard	Worst/typical consequences	Magnitude of risk	Control Measures	Schedule and responsible person	Done

Next meeting date and convenor:
