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JUKKA TAKALA

Director, European Agency for Safety and Health at Work

Foreword



Since the adoption of the European framework directive in 1989, risk assessment has become a familiar concept for organising prevention in the workplace and hundreds of thousands of companies all over Europe assess their risks regularly. Nevertheless, the figures on accidents and illness at work show that improvements are needed.

Everybody has an interest in keeping workers safe and healthy. And most work-related accidents and illnesses are preventable. But how? Risk assessment is the first step, because it provides an understanding of the actions that need to be taken to protect the health and safety of workers. Systematic risk assessment therefore improves workplace safety and health and business performance in general.

The data gathered at Member State level show that risk assessment is not universally carried out. A significant number of companies, mainly small and medium enterprises (SMEs), still do not assess their risks. It is for this reason that SMEs are the primary target audience of this Healthy Workplace campaign on risk assessment.

To help companies in general and SMEs in particular to assess their risks, initiatives have been taken to develop simple tools to facilitate risk assessment or increase awareness about the importance of managing risks. This Magazine shows such initiatives taken mainly at Member State level. The contributions come from across Europe and describe the efforts of a broad spectrum of individuals and groups, including government ministries, employers' organisations and trade unionists, to improve the management of risks in the workplace.

To support the European campaign on risk assessment, the Agency is making available a wide range of material for all those trying to make Europe's workplaces safer and healthier – whether worker, employer, OSH professional or policy-maker. This information, in all official languages of the EU, is provided free of charge by the Agency via its website at <http://hw.osha.europa.eu>.

This Magazine is part of these resources. It brings perspective on the theme of risk assessment. It provides an interesting picture of the scope of initiatives taken to facilitate the task of promoting healthy workplaces.

together articles to give a wide perspective. It is hoped that these articles will provide an update of assessing and managing risks in

Jukka Takala
Director, European Agency for Safety and Health at Work





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KRIS BAETENS

European Association of Craft, Small and Medium-Sized Enterprises (UEAPME), Brussels, Belgium

Risk assessment in small and medium-sized enterprises (SMEs): UEAPME's point of view



EUROPEAN ASSOCIATION OF CRAFT,
SMALL AND MEDIUM-SIZED ENTERPRISES

The health and safety policy in a SME demands a different approach from that of a big company. There are many differences between SMEs and their larger counterparts, and this must be taken into account when assessing risks in SMEs.

This article focuses on three main issues.

Firstly, the characteristics of SMEs. These characteristics influence the way SMEs manage risks in the workplace and how they carry out their risk assessment.

Secondly, the impact of current economic changes and the priorities of UEAPME in this specific context. Changes create new challenges for SMEs and hence new challenges for risk assessment. Risk assessment requires know-how and expertise. SMEs don't always have these competencies within their own company. Many SMEs have to seek external tools and partners to help develop the health and safety policy of the company in general, and risk assessment in particular.

Thirdly, the labour inspection services offer excellent guidelines and tools for SMEs. UEAPME considers the labour inspectorate to be an important external partner in helping SMEs with risk assessment, and aims for a situation where there are 'less sanctions but more support from the labour inspectorate'. When sanctions are applied, they should be aimed at those companies which, after having been warned, still neglect health and safety or refuse to carry out a risk assessment.

Specific characteristics of SMEs

The way SMEs approach the topic of risk assessment is strongly influenced by the structure and strengths of the particular SME, but there are some characteristics that are applicable to most if not all SMEs, as follows:

Informal social dialogue

In most SMEs, social dialogue is conducted in a very informal way. In most of them there are no formal consultation bodies or procedures. The social dialogue in SMEs is a continuous, informal interaction between employer and employees and also among employees. Many SMEs don't have, and don't need, formal consultation bodies or procedures to identify problems or pinpoint risks. The problem and the solution will be discussed on the shop floor.

Employer works with employees

An enormous advantage for most SMEs is the fact that the employer works alongside the employees. This means they can see the risks in the workplace and operations first hand and will be more likely to take measures to reduce or eliminate risk. These measures can include important innovative changes or simply small changes with great effectiveness for the safety of workers and employer. With this kind of operation, risk assessment is a continuous, informal process.

Flexibility

Flexibility is key for SMEs. Employer and employees are often required to multi-task in a constantly changing environment. They are highly adaptable. This also means that workers have a good knowledge of how their company works, and most of the workplace risks. This flexibility among staff will affect the way the risk assessment is carried out.

Fast decision-making process

Another advantage of SMEs is the fast decision-making process. In a larger company when one wants to introduce changes, it is usually necessary to consult several hierarchies of managers. In an SME with a flat hierarchy, the employee can go directly to the right person and make a proposal. This saves both time and energy.

Familiar atmosphere

Employees are working for the company but are also ready to be mutually supportive and to help each other if necessary. The willingness to support colleagues creates a very special atmosphere in the company between workers and between employer and employees. This makes it easier for employees to correct one another and to educate one other on risk assessment.



Easy communication

The traditional informal communication and the direct and personal relationships at all levels of an SME facilitate rapid adaptation of change and a better anticipation of risks. These positive elements create a sound basis for carrying out a risk assessment which is adapted to the needs of the company.

On the other hand, of course, SMEs also have some shortcomings when it comes to risk assessment. The classic problems that need to be tackled in SMEs include:

Low degree of delegation

The employer is responsible for all the various tasks from human resources management to accounting and the production process. The company Health and Safety policy is just one among many responsibilities. While the employer remains responsible for every aspect of the company's activity, they definitely need to be supported by other employees in the risk assessment area.

Lack of long-term strategic vision

Another shortcoming in SMEs is that they tend to lack strategic vision. Problems tend to be solved as and when they occur. They are not dealt with in advance. Because of this outlook, it is difficult to teach employers how to be proactive about Health and Safety and risk assessment. In some cases, employers only take action after an accident. It is never too late to set up a risk assessment, but it should be done proactively.

Less formal risk assessment

Employers in SMEs tend to carry out the assessment and any preventive measures in practice on the shop floor, without formal documentation. Each time they have to start from scratch once more. A more formal risk assessment using specific practical tools would be much more productive for them in the long term. Many SMEs need improvement in this regard.

Economic changes, new economic challenges

Changes in the economy influence the work of SMEs, and therefore risk assessment. These include:

- a more complex society (globalisation, structural change, rapid technological development, etc.)
- more complex business operations
- shorter lifespan of technologies
- customer-oriented production
- need for company networks
- new products and operations
- new technologies / innovation
- increase in outsourcing.

Policy makers and inspection services have to take these strengths and shortcomings into account when dealing and cooperating with SMEs in the field of safety and health. The real challenge for SMEs is the correct and effective application of all the existing legislation across the Member States. The labour inspection services have to act as partners to SMEs to achieve those objectives.

The priorities of UEAPME

SMEs need practical and effective instruments

The existing legislative framework for risk assessment at European level is adequate. The focus should now be on the implementation of this legislation at national, regional, local and company level. In the new Member States in particular, financial support from the structural funds could contribute to faster and better implementation as well as the application of the 'acquis communautaire' in the workplace.

In the field of health and safety, the Commission's approach of 'Think small first' should guide all its future activities, taking into account that 99% of all companies in Europe are SMEs, and 92% of these are micro-enterprises. Therefore, before revising existing legislation or taking any new initiatives, an in-depth impact assessment should be carried out, especially concerning very small companies.

As some of the 'new' risks, such as musculoskeletal disorders originate also from outside the workplace, a legislative approach is not the appropriate way to solve the problem. In this case, more initiatives should be developed to raise awareness and prevention. In addition companies should not be automatically held responsible for everything that goes wrong, which very often gives a negative image of entrepreneurs and entrepreneurship.

More emphasis should be placed on guidance. The authorities at European level should produce more guidelines aimed at giving practical support to companies, in particular SMEs (e.g. optical radiation guidelines are essential for the correct implementation of the new directive).

Strengthening the culture of prevention

All parties should work towards a culture of prevention. This must be based on a partnership between all the players involved and must be accompanied by substantial efforts in information provision and training and in enhancing awareness.

The Bilbao Agency should come up with a programme for the prevention of health and safety risks in SMEs in particular, as was done in the past. The Bilbao Agency should also continue its important work in the exchange of good practice between Member States and social partners.

The need for a partnership

The Health and Safety policy, the risk assessment and prevention in general have to be based on a strong partnership between all players involved. There is no need for new institutions, but rather for better networking and cooperation between the relevant actors, and between sectors at all levels. We have to bundle the different forces towards strong collaboration, with only one target: a better Risk Assessment in SMEs, a better health and safety environment for employer and employees.

UEAPME also considers the labour inspection services in the various Member States to be a very important external player for the SME. SMEs need the support of labour inspectors to better comply with legislation, primarily through education, persuasion and



encouragement; then, where necessary, through coercive measures. A correct and effective implementation of legislation is very important, from a social as well as an economic perspective.

The role of the labour inspection services: a vision of a new way of working

UEAPME misses a global overview of the state of play of implementation of health and safety legislation. This overview is necessary on European level, and also at the national and regional levels. Additionally there are also some structural needs. UEAPME expects a labour inspectorate to be a modern, up-to-date and professional authority. It has to be run by highly professional staff members.

Today there are many differences in the way Member States and regional authorities carry out their duties in this regard. The reporting is different; the use of prosecution is different. It is highly desirable to work towards a more homogenous approach across countries and from region to region within countries.

Stronger coordination is necessary. The establishment of a management system ensuring that the same policy, strategy and priorities are implemented would be particularly welcome.

Conclusion

Risk assessment in the workplace is a central issue for all employers. SMEs are well aware of the importance of the topic for their

workforce. Nevertheless, too many legislative obligations combined with ill-conceived forms and documents for small businesses to fill in do not help SMEs carry out their obligations. Therefore, UEAPME is urgently calling for less and better legislation, and for strong support through a variety of tools that facilitate the understanding of legislation by small employers and therefore its better application in the workplace.

Last but not least, a strong partnership between SMEs and the labour inspection services is indispensable. The labour inspectorate should provide more help for SMEs in developing the health and safety policy of the company in general, and risk assessment in particular. This is the key message of UEAPME.



Kris Baetens is a legal counsellor who is specialised in health and safety matters. He is based at the research department of UNIZO, the Union of Self-employed Entrepreneurs in Belgium. He is engaged in inter-professional social dialogue and is an active member of the National Labour Council and the High Council of Health and Safety at Work in Belgium. He is also on the negotiation team of

UEAPME, the European Organisation for SMEs.



LAURENT VOGEL

Health and Safety Department of the European Trade Union Institute – Research, Education, Health and Safety (ETUI-REHS), Brussels, Belgium

Workers and safety representatives' participation: the key to success in risk assessment



Since the 1989 Framework Directive, risk assessment has become a familiar concept for organising prevention in the workplace. Hundreds of thousands of companies conduct this exercise every year, but the results are still unsatisfactory. The International Labour Organisation estimates that there are more than 160,000 work-related deaths every year in the 27 EU Member States. Ten thousand of these, a fifteenth of the total, involve fatal occupational accidents. Work-related cancer is a major cause of death.

Such a critical observation does not call into question the importance of risk assessment. On the contrary, it is the key to prevention policy. Prevention means anticipating and analysing the various aspects of work to identify short and long-term risks. Without a systematic assessment of the risks involved, it would only be possible to apply a reactive, after-the-event policy to correct particular aspects of the organisation of work.

The problem is certainly not that too much time is spent on assessing risks; rather, it is in the way risks are assessed and how this activity is integrated into an all-embracing prevention policy.

Surveys conducted in different countries show that all too often employers consider risk assessment to be a mere administrative formality to be farmed out to external consultants (usually external prevention services). There are a number of drawbacks to this approach. The assessment does not put the company in control of analysing the problems internally. It is not sufficiently linked to implementing prevention plans to eliminate risks. All too often it is no more than a formal exercise limited to traditional and visible risks. It frequently fails to address the problems posed by the organisation of work, its intensity, the problems linked to working hours, or the precarious nature of the job.

The most worrying aspect of this situation is that workers' reps are hardly involved in the assessment process. One survey organised recently in Belgium by ETUI-REHS in collaboration with the Free

University of Brussels indicated that the prevailing conception of risk assessment is not based on the participation of workers' reps. 65.9% of respondents reported that a risk assessment procedure had been carried out in their workplace. In 65% of cases, the workers' reps had simply rubber-stamped the document, or had only been asked for their opinion on the final document. Only 22.3% of union reps reported having been involved in choosing risk assessment procedures; 16.9% said they had been consulted while the study was going on, and 15.9% said that they had a hand in the study through working groups.

In the UK, a survey conducted among safety reps showed that fewer than 30% of them are satisfied with their involvement in risk assessment. 44% are not involved at all and 27% are insufficiently involved.

On the other hand, in companies where workers' reps play an active role in risk assessment it is generally of a higher quality, covers a wider variety of risks and leads to more systematic prevention measures. One survey, carried out in 28 hospitals in the Piedmont region in Italy, showed that consultation of workers' safety reps is the most significant variable for determining which hospitals have a coherent prevention policy. Whether it concerns awareness of the risks by the doctors in charge of a unit, risk assessment, planning prevention or training measures, the situation is much more favourable in hospitals where workers' reps are consulted regularly and systematically.

A policy context fraught with dangers

The finding that in many companies risk assessment has been reduced to a mere bureaucratic formality is shared by many observers. However, the solutions proposed vary considerably. The majority of employers and the governments closest to them propose to 'simplify' risk assessment using a two-pronged approach. From the legislative point of view, as part of the campaign for 'better regulation', several governments would like to water down the requirements of the Framework Directive. They consider that risk assessment could be waived for small companies or for temporary workers. Another proposal would be, in certain cases, to limit the exercise to a virtual assessment with no written record and therefore no opportunity for consulting workers' reps. The idea of 'demystifying risk assessment' by turning it into a mere exercise of common sense can not contribute to an improvement of prevention.

This campaign is being waged in the name of containing 'administrative costs', which could be brought down by 25%. The



arguments underlying this campaign are based on a distorted view of the situation. The agenda followed by the 'myth exploders' itself rests upon some dangerous myths and on an ignorance of the elementary requirements of prevention.

Risk assessment has to be much more than a simple exercise in common sense if it is to become an effective instrument for prevention. In the field of occupational health, many risks have been made invisible by society. Most long-term risks are underestimated. Sometimes they are denied. Risk assessment is necessarily an exercise in deconstructing this invisibility. Prevention is only effective if we can understand risks through their relationships to one another and trace them back to determining factors such as the organisation of work and social relations in the workplace. Many employers in SMEs underestimate the situation, but in fact work-related risks are often both endemic and complex in small companies. To give just one example, female cleaning staff are simultaneously exposed to serious chemical hazards, uncomfortable ergonomic postures, difficult working hours and a tyrannical work organisation. All too frequently these factors are aggravated by low social prestige and gender and ethnic discrimination. To believe that we could limit assessment to a simple exercise of 'common sense', possibly supported by a quick checklist, is to turn our backs on the prospect of an all-embracing prevention approach that tackles the root causes of health problems in the workplace.

It is absurd to claim that risk assessment represents an excessive 'administrative cost'. One recent survey from the UK noted that SMEs dedicate very little time to health and safety issues. Around 60% of companies with fewer than 10 workers spend one hour or less per week and 25% spend no time at all on this matter. The excessive cost for SMEs is caused by accidents in the workplace and the great many occupational diseases affecting workers.

Seeking to reduce risk assessment requirements is no more than demagoguery. However, that does not mean that we simply have to put up with the current situation. It just means that we need to improve it through a different approach.

A few pointers for the future

Promoting a participatory risk assessment is certainly the most promising alternative to a formal and bureaucratic concept of such an assessment. The justification for this proposal can be summarised in two words: interest and knowledge. Workers have a clear interest in improving prevention. In the European Union today, slightly fewer than 30% of workers consider that working conditions affect their health. When asked whether they would be able to continue to do the same job after they turned 60, more than 40% of people said no. These are just averages. Working conditions mark major social inequalities in terms of health. They contribute to the growing gap in life expectancy between the more privileged sectors and manual workers. It is the workers with the least control over their working conditions who tend to accumulate risks. A participative assessment can help to reverse this trend: giving a voice to the men and women who are generally denied this possibility. Their interest in changing working conditions can be based on first-hand knowledge of such conditions. When it comes to defining work-related health problems and finding solutions to them, the collective expertise of workers is no less than that of the specialists. It takes other forms, uses a different language, but is undeniably useful. Antonio Grieco, who ran the occupational medicine clinic in Milan for many years, spoke of

two different cultures to characterise the views of prevention experts and workers:

"We can imagine a dialectic relationship between these two cultures – original, autonomous cultures (...) with totally different experiences, instruments, categories of thinking, assessment techniques, that really exist and must coexist even in confrontation with each other, and must work together. It is in that confrontation between specific contributions – each with their own experience and respective instruments – that we will find a wealth of solutions."

The following statement emerged from a survey on the collective perception of risk among the workers in Spain's ceramics industry:

"Contrary to the typical terminological distinctions of the jargon of prevention techniques, the spontaneous collective perception of workers with regard to risks in the workplace is generally expressed as a web of inter-relations in which, for example, health and safety hazards are linked to specific forms of organisation and are perceived in the way that they materialise as health hazards (...). In the discussion groups in which a collective perception of risks with less media coverage emerges, workers express different problems and priorities to those identified by the experts. We can especially see the importance that workers attach to health problems linked to work organisation as opposed to the experts' almost exclusive concern with safety and accidents in the workplace."

The choice is not between assessments made by the workers themselves or those made by experts. There needs to be an assessment in which each party's knowledge is recognised as equally legitimate and complementary and in which validation of such knowledge ultimately rests on the capacity to provide practical solutions to workers' needs.

More systematic participation by workers and their representatives in all the stages of risk assessment is an alternative to outsourcing the process to consultants. That would guarantee the optimal consideration of all the risks and particularly facilitate the process of assessing the definition of a practical prevention plan. Such participation requires two prior conditions: respect of that most elementary form of workplace democracy – the existence of workers' representation – and appropriate resources in terms of information, training and access to expertise. This represents an enormous challenge for trade unions. They must be able to support the workers' reps effectively, come up with practical tools to assess the risks, and provide critical and competent appraisal whenever necessary.

Another way forward would involve pooling risk assessment. Hundreds of thousands of different assessments are currently organised at company level. More often than not, the approach is highly fragmented. Prevention strategies have a lot to gain by pooling experiences. I can recall a very interesting experience in Bordeaux, where a joint risk assessment was carried out by all the city's hairdressing salons. After this joint assessment had been done, the general conclusions could easily be adapted to the particular situation of each company. Pooling efforts is a good alternative to second-rate assessments. It fosters a more active participation by the public authorities and collective systems of relations which allow unions and management to act effectively. The implementation of



REACH¹ is a challenge in this regard. It provides an unprecedented opportunity to improve prevention in the field of chemical hazards. The quality of this work will also depend on the capability of the public institutions to provide practical assessment tools, pool the knowledge acquired and stimulate sectoral approaches to help to replace the most hazardous substances in a systematic way. If these conditions are met, risk assessment will show its enormous potential to kick-start prevention and change working conditions.

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Website: EPSARE: European Project on Safety Reps http://hesa.etui-rehs.org/uk/dossiers/dossier.asp?dos_pk=15



Laurent Vogel is the Director of the Health and Safety Department of the Trade Union Institute – Research, Education, Health and Safety (ETUI-REHS) in Brussels. ETUI-REHS is

funded by the European Commission and aims to promote high standards of health and safety in the workplace throughout Europe. It succeeds the former European Union Technical Bureau for Health and Safety (TUTB), founded in 1989 by the European Trade Union Confederation.

¹ REACH is a new European Community Regulation that creates a new, single system for the Registration, Evaluation and Authorisation of Chemicals. More on REACH: <http://echa.europa.eu>



JAN MICHEL MEEUWSEN

TNO Quality of Life, Hoofddorp, The Netherlands

Digital Risk Inventory and Evaluation (RIE): a Dutch approach offering valuable support for small business owners



The Dutch Working Conditions Act requires employers to perform a Risk Inventory and Evaluation (RIE). Until recently, small business owners in particular were unhappy about this rather time-consuming obligation. However, the introduction of digital RIE instruments disseminated through the web has simplified the process enormously. This approach is strongly supported and subsidised by the Dutch ministry of Social Affairs and Employment. By using these digital instruments, employers in small and medium-sized enterprises (SMEs) can comply with the law cheaply and easily, and help to ensure a healthy work environment.

This article describes the background and development of the digital RIE approach in the Netherlands, focusing particularly on the SMEs sector. It touches on important features to keep in mind when implementing such an approach on a national level.

Dutch legal background

Under the Dutch Working Conditions Act, all employers must record the risks faced by their employees, as well as when and how they intend to reduce those risks, in their working conditions policy. Since 1994, a Risk Inventory and Evaluation has been obligatory for all Dutch employers where more than 40 hours' paid labour is performed a week.

The purpose of the RIE is to answer questions such as: Have any accidents ever occurred at the company premises? What could go wrong that might cause damage? What is the risk of a specific undesirable event happening? How could this risk be limited? Subsequently, in consultation with the employees, a plan of measures is developed in which the business owners outline how and when they plan to deal with the risks.

Until recently, all companies in the Netherlands were required to have the RIE approved by a certified OSH service. The costs involved often made small business owners reluctant to perform an RIE. However,

Dutch legislation no longer requires companies with between 10 and 25 employees to engage an OSH service for a full authorisation of the RIE. Instead, if the RIE instrument is accepted by the social partners, a partial authorisation through an OSH service is sufficient.

Since 1 July 2005, companies with fewer than 10 employees are likewise no longer required to have the OSH service review and the RIE approved. Instead, they are required to complete an RIE that has been approved by the employers and employees of the relevant sector or industry.

Stone Age RIE instruments

For a decade (1992-2002), the 'old' RIEs were paper questionnaires that hardly made any distinction between business sectors – they were virtually the same. Employers were required to read the whole questionnaire to find the parts applicable to their sector. 'The dizzying array of questions would sidetrack employers from what really needed to be done in their business. In addition, many had no idea what the purpose of various questions they had to answer was, so it took them a lot of time to complete the questionnaire,' says Mario van Mierlo, Secretary for Working Conditions Policy at MKB Nederland, the Dutch association for small and medium-sized enterprises (SMEs). MKB Nederland represents 125 sector organisations and 175,000 SMEs. The vast majority (90 per cent) of Dutch SMEs employ 10 people or fewer. In such companies, the owner/entrepreneur will often personally take on a number of work-related activities, such as the development of a working conditions policy.

To make this process easier for entrepreneurs, MKB Nederland turned to TNO Quality of Life in 2003 and asked them to develop a generic digital RIE for SMEs that would be easier to fill in. The Dutch Ministry of Social Affairs and Employment, acknowledging the problems faced by small business owners, co-funded the development of this tool. Partners in the development were the Dutch OSH services Commit, Stigas, Arbo Duo and Avenso.

This pioneering project helped entrepreneurs from SMEs to switch from using Stone Age instruments requiring exhaustive struggles with piles of paper to a simple, efficient and interactive digital tool.

A Dutch offensive in digital RIEs

Meanwhile, around 2003, a new cabinet in the Netherlands decided to drastically reduce the administrative burdens faced by Dutch



citizens and companies. The political vision was that excessive administrative burdens were slowing down economic growth and widening the gap between citizens and the government.

A special taskforce was appointed and the objective was to cut the administrative burden by 25% in four years. An initial analysis showed that OSH regulations imposed a rather substantial administrative burden on the Dutch business community. Specific research performed by TNO for the Ministry of Social Affairs and Employment demonstrated that many OSH administrative and bureaucratic obligations really frustrated small and medium-sized enterprises. This research¹ has shown that some entrepreneurs regard RIE as an administrative obligation that adds little to their core activities: doing business, surviving and growing. One entrepreneur called the RIE a 'paid insult'.

Consequently, the ministry decided to build further on the successful digital tool developed for MKB Nederland. TNO was then asked to produce digital risk instruments for many sectors in close collaboration with social partners and OSH services. Today, more than 70 digital RIEs have been developed for different business sectors. These range from hospitals to fish shops and care givers. Each sector has its own tailor-made instrument with questions related to its specific risks. Moreover, through the use of so-called filter questions, where a 'Yes' ignites a new set of questions, the user can navigate easily through the forms.

Netherlands today, sector organisations are stimulated to develop so-called OSH solution catalogues. This goes a step beyond the digital risk assessment, because it offers immediate solutions to employers. In this approach, best practice in a sector is collated and presented to all, thus avoiding the need for each individual employer to 'reinvent the wheel'.



Entrepreneurs can download the questionnaire from the Dutch websites www.rie.nl and www.arboportaal.nl. And they are certainly doing so: on average, 5,000 copies of the digital RIE are downloaded each month.

Taking just 90 minutes to complete, field-specific digital RIEs are remarkably easy to use. Business owners only need to answer questions that are truly relevant to their particular field. Questions regarding the risks involved in transporting hazardous substances are no longer a standard part of the survey. After all, what relevance do such questions have for respondents in, for example, the sports sector? Sector-specific RIEs also make it easier to provide detailed solutions: if the owner of a bar doesn't have a protocol for connecting the beer pump, a protocol can immediately be downloaded through the hyperlink in the digital RIE. In fact, in the

The digital RIE project approach was not focused exclusively on a top notch digital instrument, but it also took into account the management of a process in which social partners and OSH services active in the specific sector could be included in the developmental process. Moreover, a relevant incentive was introduced for sector organisations to motivate them to participate, it was stipulated that if the digital instrument was developed and accepted by social partners, the members of the sector organisation would be subject to less severe enforcement by the Dutch labour inspectorate.



Impact

The important question is: has this approach resulted in a significantly higher compliance rate amongst SMEs? Entrepreneurs

¹ Heemskerck, F. et al. (2003), (TNO and BMVS): Kleine bedrijven en arbo [Small enterprises and occupational health and safety]. 'Ik wil geen antwoord, maar een oplossing' [I don't want an answer but a solution]. SZW, The Hague.



using the instrument have indicated in evaluations that they value the simplification and computerisation highly. It saves time and the digital instruments are well-synchronised with business practice. However, not all entrepreneurs are aware of the new offer and it appears that there is still computer phobia in some sectors, so the old paper RIEs are still in use.

Initially, it appeared from figures gathered by the Dutch labour inspectorate (AI) that compliance with the RIE obligation was reasonably high in the Netherlands. However, because of the under-representation of very small businesses (with less than 10 employees), these figures painted too flattering a picture. However, one can assume a compliance percentage of between 50% and 59% of all employers in the Netherlands. Compliance is lowest amongst the (very) small businesses. Figures from the Dutch labour inspectorate for 2006² yielded the following picture:

Company size and compliance with RIE obligation

Company size	Compliance percentage with RIE obligation
1-4 employees	42%
5-9 employees	53%
10-99 employees	82%
> 100 employees	97%

The implementation of developed instruments and approaches by sector organisations down to the shop floor is also less than expected. This is particularly true for small businesses.

Moreover, it is a fact that support for legislation on occupational health and safety in very small businesses is in general exceptionally low. However easy it is made by the government, many entrepreneurs are not convinced of the added value of an administrative obligation such as completing an RIE. This is not to say that no time is being spent on health and safety measures; rather that other measures are being taken in order to improve working conditions. This is often done in a reactive manner as soon as an actual problem comes up. In the second half of 2007, the Ministry of Social Affairs and Employment commissioned research into what motivates small businesses in deciding whether or not to comply with the statutory RIE obligation. This research is being carried out by TNO.

In recent evaluations, employers have indicated that downloading and retrieving the digital RIE instruments from a website is not always possible. In addition, businesses have indicated that it should be made easier to find the right instrument or explanation on the relevant websites. The government and sector organisations also change their websites often, and this does not promote an efficient search process for users of digital instruments.

In short, the offer of digital RIEs is impressive and in some sectors their use has led to a substantial drop in the administrative burden and an improvement in working conditions. A big step in the right direction has been made by digitalisation and by a development process whereby risks have been mapped and improvement measures have been proposed at a higher aggregation level in a

sector. The government and the sector organisations now need to publicise these instruments more among SMEs. It is also necessary to keep access to the web simple and to ensure the digital instruments are easy to use and kept up to date.

Conclusion

Trade organisations expect that the digital RIEs will enable more business owners to comply with the legal requirements, creating a positive impact on the working conditions in their companies. Additionally, the RIE will reflect positively on the image of employers – after all, the fact that they are using it shows that they take their moral obligation to take good care of their employees seriously. This fundamental principle of being a good employer is set out in both the Dutch Working Conditions Act and the Dutch Civil Code. If employers fail to comply with their duty of care, they may be confronted with a high rate of absenteeism as well as claims filed against them by employees. Given that these claims concern an occupational disease or injury, the burden of proof is on the employers. This means that they must demonstrate to the court that they have done everything possible to prevent damage. If they fail to convince the court, it may have serious consequences. An RIE is a means of showing that employers take their duty of care for their employees seriously.

The fact that such claims are no laughing matter is evidenced by figures provided by the Occupational Diseases Bureau of FNV, the Dutch trade union confederation. In recent years, the Bureau has handled no fewer than 150 cases in which employees sued their employer for damages related to an occupational disease or injury. The majority of these cases were settled amicably. However, some were not, and the courts ordered the employer to pay damages. The compensation awarded covers loss of wages, holiday allowance, pension payments, and sometimes emotional damage. In July 2007 the bureau assisted a consultant from an insurance company in a case against his employers. He received compensation amounting to 237,000 euros because he suffered from burnout caused by his work and no prevention measures were implemented.

What is the main incentive for business owners to take their working conditions seriously? Preventing absenteeism continues to be the best policy and the digital RIE – being cheap, easy and effective – is the best tool to support it.



Jan Michiel Meeuwssen works as a consultant OSH manager at TNO Quality of Life, Hoofddorp, The Netherlands. He is a specialist in national OSH policy. He has worked in different cultures and has experience in impact assessments of draft legislation in CEE countries, and the training of labour inspectors and entrepreneurs in SMEs on OSH policy.

² Bos, M., Saleh, F., Erdem, O., Samadhan, J. (2007), *Arbo in bedrijf 2006. Een onderzoek naar de naleving van arbo-verplichtingen, blootstelling aan arbeidsrisico's en genomen maatregelen in 2006*, Arbeidsinspectie.



ELISABETH LA COUR

Danish Working Environment Authority (DWEA), Denmark

Challenges in getting SMEs to draw up a risk assessment



This article explains the Danish Working Environment Authority's approach to getting small and medium-sized enterprises (SMEs) to carry out a risk assessment. The Danish Working Environment Authority has drawn up a series of sector-oriented working environment guidelines and risk assessment checklists aimed at helping SMEs to draw up such assessments.

In Denmark – as in all other EU countries – companies with employees have an obligation to draw up a risk assessment, irrespective of the size of the business. The risk assessment should be drawn up in collaboration between management and employees. The risk assessment is the company's own tool for mapping, prioritising and resolving problems associated with the working environment.

Denmark has a large number of SMEs. In Denmark SMEs are defined as companies with fewer than 10 employees, and around 70% of the approximately 200,000 employers fall into this category.

Challenges

Because many companies in Denmark are so small, it is very seldom that a company has a person employed specifically to look after health and safety. It is therefore a challenge to get the message across to SMEs that they have an obligation to draw up a risk assessment.

Furthermore it is crucial to communicate to SMEs that health and safety pays – a safe and healthy working environment makes good financial sense. At the same time it is important to make companies aware that drawing up a risk assessment involves more than just filling in a formal piece of paper. It is important for the company to carry out its risk assessment in a systematic way, and to treat it as a routine part of its health and safety work.

It is a major challenge to help SMEs to draw up a meaningful risk assessment in the most effective way.

The Danish approach to the problem

In Denmark it was decided to handle the problem by means of targeted communication and assistance for SMEs. The Danish Working Environment Authority (DWEA) has therefore drawn up 48 sector-oriented working environment guidelines and 60 risk assessment checklists. Both the guidelines and the checklists are intended as non-compulsory aids for companies. In other words, these tools are optional.

There are no requirements as to which methodology companies should use when drawing up their risk assessment, just as there are no formal requirements placed on the risk assessment. The only requirement is that a risk assessment should be written down and that the following process requirements should be satisfied:

1. Identification and mapping of the health and safety conditions in the company
2. Description and assessment of the health and safety problems of the company
3. Incorporation of figures on absenteeism at the company
4. Prioritising and preparing an action plan to solve the health and safety problems
5. Guidelines on follow-up procedures with regard to the action plan.

Sector-oriented working environment guidelines

As mentioned above, the DWEA has drawn up 48 sector-oriented working environment guidelines, where companies can read more about the requirements in relation to the working environment and find good advice on preventing problems.

The purpose of the sector-oriented working environment guidelines is to identify expected work-related risks in the different sectors. This will help companies focus their risk assessment on the problems that are important to them. The working environment guidelines have been drawn up in the knowledge that the range of work-related risks varies widely within the same area depending on the sector. For example, problems of ergonomics will not be the same in a bank as on a construction site.

The working environment guidelines contain information on what the DWEA considers to be the most important working environment problems in the various sectors. The guidelines contain, among other things, information on the most important rules and the DWEA's proposals on how to resolve typical problems in the various sectors. Hence the guidelines serve as tools both for mapping problems and for coming up with possible solutions to the problems.

The working environment guidelines were drawn up in 1999, and at the same time changes were made in the way the DWEA carries out its inspections. The DWEA's inspections are now organised so that they take the company's risk assessment as the starting point and focus on the health and safety risks mentioned in the working environment guidelines for that sector.

The working environment guidelines were developed by combining knowledge from the DWEA's own technical experts and knowledge from research into the work environment. The problems associated with the work environment have been prioritised so that the



guidelines are not too extensive. A guideline typically contains between four and six health and safety risks. They are not intended to be exhaustive, so there may be problems that are not mentioned in the sector's working environment guideline but which are still relevant to the company. It is the company's responsibility to ensure that the working environment is in order, and it should include all relevant problems – whether or not they are mentioned in the guidelines.

Today the DWEA normally sends the relevant guidelines to companies before a scheduled inspection so that the companies can prepare themselves for the inspection. The DWEA also uses the guidelines to train its inspectors before they carry out an inspection in a new sector. The inspectors' ongoing experiences with a sector can therefore also be used to assess the guidelines.

The working environment guidelines are updated as the DWEA receives new knowledge on the problems within the various sectors. During its updates, the DWEA applies both its own experiences and research-based knowledge. At the moment the DWEA is in the process of incorporating psychosocial risk factors into all working environment guidelines.



One of the 48 sector-oriented working environment guidelines.

Risk assessment checklists

A couple of years after the working environment guidelines had been developed, the DWEA developed its sector-oriented risk assessment checklists. The background was a political decision to assist SMEs. In contrast to the guidelines, which are aimed at all enterprises, the checklists are aimed directly at SMEs (companies with fewer than 10 employees). The checklists are optional, rather than a regulatory requirement. They help companies map their working environment problems.

The checklists are sector-oriented and therefore their focus is the working environment conditions that are typical for the individual sector. The checklists contain a series of questions to which the enterprise should answer yes or no. All the questions with a 'yes' answer constitute a working environment problem which should be prioritised and if necessary form part of the action plan to be drawn up by the company.

The DWEA has produced checklists covering around 60 sectors. If a company has activities within various sectors, it can fill in several checklists. The DWEA updates the checklists on a continual basis. It has also developed a specific checklist that only concerns the psychosocial working environment, and can be used within all sectors.

Enforcement

To ensure enforcement, checks are carried out during the DWEA's inspection to see whether companies have drawn up a risk assessment. If there is no risk assessment, the DWEA issues a notice giving the company a deadline to produce one.

Experience with the sector-oriented working environment guidelines and checklists has shown that companies have reacted positively to these useful tools. Even though the checklists were drawn up to help smaller companies, both tools are being used by large as well as smaller companies.

When the DWEA began screening all companies on 1 January 2005, it became aware that there was still a challenge in getting SMEs to draw up a risk assessment.

In those sectors that traditionally have visible problems with the physical working environment, e.g. the building and construction sector, companies have been more accustomed to focusing on the working environment, and it has been more natural to use working environment guidelines and checklists here than in those sectors where working environment problems are not as immediately visible.

By the end of 2011 the DWEA will have inspected all Danish companies. During the inspections the risk assessment will be checked. It is hoped that that the risk assessment will in time become a natural part of every company's preventive health and safety work.



One of the 60 risk assessment checklists. This example shows a checklist for office and administration, with questions on indoor climate, ergonomics and the psychosocial working environment, among other things.



Elisabeth la Cour is a legal adviser at the Danish Working Environment Authority (DWEA). Among other things she works on regulations concerning risk assessment and the organisation of health and safety work.



RALF GRÜNEBERG

Brandenburg Authority for Occupational Safety and Health

Even micro-businesses can do risk assessments. A joint action by the Berlin and Brandenburg health and safety authorities and employers' liability insurance associations



able to carry out their work to a higher standard.

‘Take care’ is good advice for everyone. After all, health is an essential requirement for a high quality of life. Health is particularly important for employers and their workers. A healthy boss (employer) will run his company more effectively and healthy employees will be

In the workplace, health can be endangered by a number of conditions. The spectrum of possible risk factors for health varies from trade to trade. These range from unsafe machines and plant to dangerous substances or unsuitable working materials, and can go on to include undue stress, for example through working under pressure.

It is worth taking a good look at these ‘working conditions’ and their possible consequences for health and safety. The Health and Safety Act even provides a legal obligation for employers in this regard. This act describes the associated procedure as ‘risk assessment’.

The aim of risk assessment is quite simple. It involves analysing activity at the workplace and evaluating the associated risks in order to determine any necessary health and safety measures. These will primarily be measures to ensure a safe and practical working environment. It may also be necessary to implement measures aimed at personal protection or the conduct of employees.

Risk assessment is pivotal for health and safety at the workplace and has become the focus of attention for Germany’s health and safety authorities and the *Berufsgenossenschaften* (BG) [employers’ liability insurance associations]. It is only when responsible employers carry out proper risk assessments at the workplace that they become capable of identifying and establishing the health and safety measures required.

Small and micro-businesses in particular encounter problems with the systematic approach required. They may be battling so hard to survive that the ‘take care’ slogan slips off a boss’s radar. It is important that they don’t see risk assessment as yet another bureaucratic requirement that is more trouble than it is worth.

It is rather a matter of establishing as simply as possible how health is actually endangered and how that risk can best be dealt with. This is particularly easy for a boss if he makes use of the experience of his employees and the specialist knowledge of his own safety experts and company medical officer. With the boss leading the way, everyone should be able to contribute towards the preservation and protection of health.

The Berlin and Brandenburg health and safety authorities are currently implementing a programme for ‘Risk assessment and implementation of health and safety measures in micro-businesses’ together with the Employers’ Liability Insurance Association (BG) for the Building and Construction Trade (BG BAU), the North German BG for the Metal Trade, the BG for the Quarry Trade, the BG for the Precision and Electrical Engineering Trade and the BG for Administrative Occupations. This joint action is based on a cooperation agreement between the German federal states (*Länder*) and the BGs involved, as well as a jointly developed basic understanding regarding the implementation of risk assessment in businesses. This forms the foundation for a coordinated approach which is as convenient as possible for businesses.

This programme examines how micro-businesses, i.e. those with fewer than 10 employees, deal with the legal obligation to carry out a risk assessment. If the approach adopted by a business proves unsatisfactory because the appropriate health and safety measures have not been determined by the boss, then it must be improved. Although establishing a suitable and practical approach is first and foremost a matter for an employer and his internal experts, it can and should also be supported by the health and safety authorities and the BGs.





The aim of the action is to determine health risks in micro-businesses in the Berlin-Brandenburg region in a more systematic manner, to better identify these risks and, on that basis, to make the right decisions regarding health and safety measures.

It is specifically intended that the seven supervisory bodies involved will between them examine how risk assessment has been carried out in at least 1,500 micro businesses. The data acquired will be evaluated centrally by the *Landesamt für Arbeitsschutz des Landes Brandenburg* [Brandenburg Authority for Occupational Safety and Health].

In 2006, more than 1,000 micro-businesses in the chosen fields (in particular those with higher levels of risk for employees) had already been inspected in the states of Berlin and Brandenburg. An interim evaluation reveals that risk assessments had been carried out and appropriate health and safety measures had been determined in 67% of the micro-businesses examined (see Figure 1). With regard to the systematic risk assessment approach taken, the BGs' own handbooks were predominantly used (46%) as well as the specialist support of the safety at work experts (27%) (see Figure 2). Unfortunately, the risk assessment records submitted by companies did not always come up to expectations: in 13% of businesses, further inspections on the basis of previously unconsidered risks were found to be necessary. Micro-businesses which had not conducted a risk assessment were invited to have one carried out and to report back independently to the appropriate authorities.

For the Berlin-Brandenburg region, this interim evaluation has already refuted the theory put forward in national publications that the majority of employers in micro-businesses either fail to carry out risk assessments, or carry them out inadequately. The majority of employers in micro-businesses are clearly motivated to protect the health of their employees through appropriate measures, even if they are not all aware that this decision-making process is called 'risk assessment'.

Figure 1 Performance of risk assessment in the businesses investigated in the Berlin-Brandenburg region

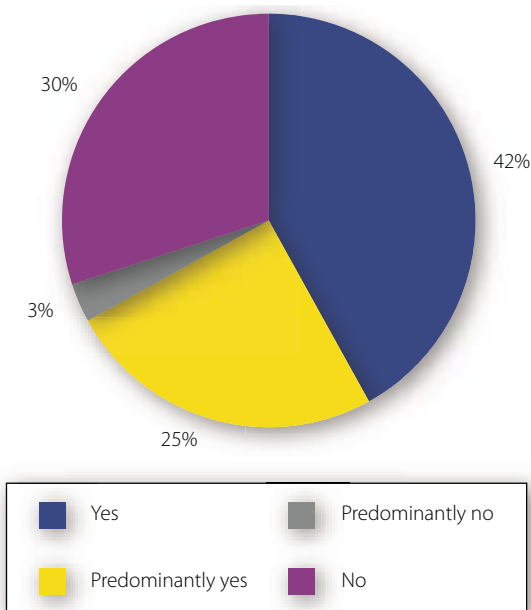
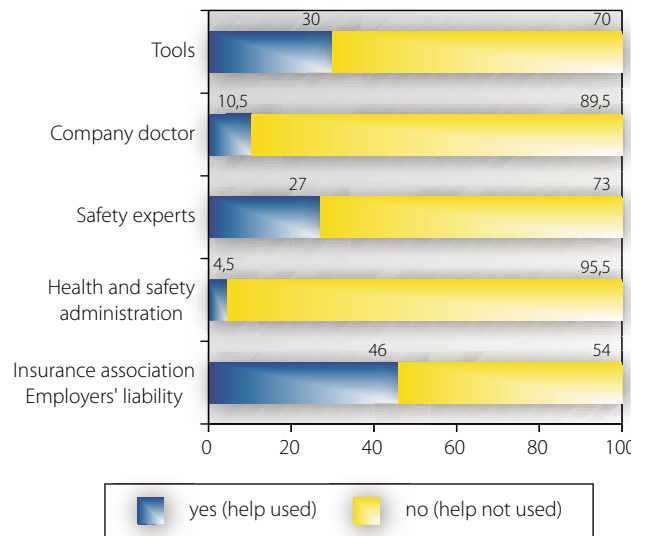


Figure 2 Help used in the development of risk assessment (handbooks of the employers' liability insurance associations, government brochures, documents from safety experts, etc.)



The action sets new standards in a number of respects for future health and safety actions on the part of institutional bodies in the Berlin-Brandenburg region. The development of a common basic understanding on the implementation of risk assessment and the task-sharing procedure of the state health and safety administration and accident insurers make it possible to provide employers with professional advice as well as joint approaches for the optimum use of resources. This approach is also currently being pursued nationally on the basis of the *Gemeinsame Deutsche Arbeitsschutzstrategie* (GDA) [Common German Health and Safety Strategy] established in November 2006.

Micro-businesses employ a large proportion of workers and, being a significant economic factor, are a centre of attention in the implementation of health and safety measures at the workplace. Good health and safety organisation and systematic, continuous risk assessment are also the best precondition for healthy employees as an essential factor for ensuring high profitability.

The action for carrying out risk assessment and implementing health and safety measures in micro-businesses was continued in 2007. The project will be completed with a comprehensive evaluation of the results involving all participants and publication of the results in 2008.



Ralf Grüneberg graduated in power engineering and is head of department of a regional department of the OSH authority of Brandenburg, Germany. Together with his colleagues he has been advising and supervising SMEs and micro-enterprises in planning and carrying out risk assessments since 2005.



HEALTH AND SAFETY EXECUTIVE (HSE), UK

Demystifying risk assessment – keeping it simple, concentrating on action!



Risk assessment is key to getting a grip on risks in the workplace – it puts you in control and it leaves your business less open to chance. By focusing on the risks that really matter in your workplace – the ones with the potential to cause real harm – accidents and ill health to workers and members of the public can be prevented. Accidents and ill health can ruin lives, and harm business too.

The process of risk assessment is often viewed as mystifying or too technical, and requiring expert input. A particularly hazardous or complex process, such as that of a petrochemical plant, will need great expertise and attention to detail, but that isn't the case for the vast majority of businesses.

Within a changing workplace, risks need to be properly controlled; for this to happen, the focus needs to be on control measures. The paperwork side of the risk assessment process is important since it allows findings to be shared with staff, and allows a review to take place at an appropriate interval. However paperwork on its own never saved a life, and in fact, all the 'i's' may be dotted and 't's' crossed, but unless the control measures identified as necessary are implemented, the risks will not be controlled. Paperwork should be a means to an end, resulting in actions that protect people in practice.

Business people need support in understanding what is expected of them, so that they are not put off carrying out risk assessments altogether because they think that risk assessment is too complex or mystifying. If this happens, risks will not be identified and no measures will be taken to control the risks.

So, it is important that people understand that a risk assessment is simply a careful examination of what in the workplace could cause harm to people, taking account of the precautions which have been taken, and making a decision on whether more should be done to prevent harm. It is important that the process does not become over-complicated, and that the focus is on action which needs to be taken to control the risks. The reality of risk assessment is that in most instances a complicated process isn't necessary, but rather that straightforward measures can readily control risks.

In Britain, the Health and Safety Executive (HSE) has sought to demystify the risk assessment process in three ways – firstly through

clearer guidance, secondly by showing by example what is expected and thirdly by using a bit of humour to correct some of the popular myths and misconceptions about health and safety requirements.

Five steps to risk assessment

HSE recently revised and simplified its most popular piece of guidance, *Five Steps to Risk Assessment*, to make it easier for ordinary business people, not just health and safety experts, to use. The guidance explains in straightforward terms what risk assessment is about and why it is important, before taking the reader through each of the five steps:

- Step 1: Identify the hazards
- Step 2: Decide who might be harmed and how
- Step 3: Evaluate the risks and decide on precautions
- Step 4: Record your findings and implement them
- Step 5: Review your risk assessment and update if necessary.

As well as making the process easier to follow, the revised guidance places greater emphasis on making sure that the results are put into action and not just filed away and forgotten.

The guidance and HSE's website are very clear that there is no single 'right' way to do a risk assessment and different approaches can work in different circumstances. It's noticeable that other countries are also working to demystify risk assessment, using different, but no less valid, approaches. The Republic of Ireland has produced a 'Safe System of Work Plan' in pictogram form for use in the construction industry. The format makes it easy for small companies to use and helps get around literacy and language barriers. Denmark has also produced a series of sector-specific tools that lead the assessor through the process for their business (see article 'Challenges in getting SMEs to draw up a risk assessment').

Whatever the risk assessment model involved, straightforward communication is key to getting more businesses to take ownership of their risks and so protect people in practice.

Examples to show the way

While revising its guidance, HSE found that business people were unclear about how much detail was expected in risk assessment records. This made it difficult for them to know where to start and at times resulted in too much detail, but no clear conclusions. It could also put them off starting at all.

HSE therefore decided to support the revised version of *Five steps to risk assessment* with some sector-specific example assessments.



These make it clear that the risk assessment should be about practical steps to protect people, it need not be difficult, and that the paperwork need not be long and complicated. By providing a clear indication of what 'enough' looks like, the example assessments answer the question 'how much is enough when it comes to risk assessment?'

Both the new guidance and the example assessments have been well received. HSE is working with stakeholders on further example risk assessments – they will continue to be added over the coming months.

Tackling the myths

When making decisions about risks, people are all too often distracted or misled by the many myths about what health and safety regulation 'requires'. In Britain there are popular stories about health and safety regulations banning everyday activities or requiring huge amounts of paperwork for even low-risk work. The stories get health and safety a bad name, distracting attention away from the real risks that need to be targeted. They also cause businesses to waste time, money and effort to meet 'requirements' that do not really exist.

HSE has been hitting back against misleading stories in its 'Myth of the Month' web feature. The feature uses cartoons and a little humour to give the facts behind some of the most popular stories. It is proving a success, with more than 35,000 people visiting the myths each month.



Myth: Risk assessments must always be long and complex

'Myth of the month' can be found at www.hse.gov.uk/myth

Focusing on the outcome – protecting people

All of this work – the guidance, the examples and the myth busters – are about ensuring risk assessment is a practical process that makes a real difference. Risk assessment should be about ensuring lives are properly protected, and that the focus is on reducing real risks, both those which arise frequently and those that are rare but have serious consequences. It should not be about generating useless mountains of paperwork for their own sake.

The guidance and examples mentioned in this article is available online at www.hse.gov.uk/risk

The Health and Safety Executive conduct and sponsor research, promote training, provide an information and advisory service and submit proposals for new or revised regulations and approved codes of practice.



NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HYGIENE (INSHT), SPAIN

An IT application for identifying and assessing risks in SMEs



This IT application is the fifth and latest edition of one of the most widely circulated simplified risk assessment tools used in Spain. Published by the National Institute of Occupational Safety and Hygiene, the resource facilitates the identification of risk factors and their assessment and provides the corresponding corrective and audit measures for appropriate management.

To guarantee satisfactory control of risks to workers, both workers and management must have a clear awareness of the risks and their determining factors – whether material, environmental, human or organisational.

Because the tool is aimed at small and medium-sized enterprises (SMEs), an over-analytical and precise approach has been sacrificed in the interests of simplicity. The focus is on basic preventive measures which, if implemented and monitored in a systematic way, should reduce the number of workplace accidents and injuries. It must be taken into account that, like any general and simplified method, it is clearly aimed at resolving deficiencies in workplaces, assisting in their identification - the first and basic step of any risk assessment - and hopefully opening the door to more specific assessment methods when regulations or individual needs demand that matters should be examined in greater depth. It is recognised that simplified methods based on checklists, such as this method, are ideal at the start of any process when the aim is to obtain general information on working areas, to eliminate deficiencies that are easy to resolve and to assess risk situations in order to plan risk minimisation and control.

The same level of analysis is applied in this case to accidents and occupational disease, ergonomic and psychosocial risks. A set of checklists are provided for this purpose (nine relating to physical safety conditions, nine to environmental conditions, two to physical and mental workload, and two to work organisation). The most significant difference between this method and a similar one previously promoted by the European Commission is that these checklists facilitate the identification of the most common and relevant risk factors while also offering a closed assessment system – although assessors are free to adjust the assessment results to their own criteria in the light of their superior knowledge of the situation examined. The assessment team, which should be made up of management and workers, is provided with criteria on the importance of each of the more than 200 risk factors considered and their effect on the results of each of the aspects assessed, thus ensuring the necessary consensus. Experience has shown that the

assessment is particularly effective when managers' and workers' representatives take part jointly, together with the company occupational risk prevention technicians.

The checklists are drawn up in such a way that when a deficiency is detected, the type of preventive measure required to rectify it is also noted. Each checklist is also accompanied by basic preventive criteria with a preventive action schedule that facilitates understanding of the checklist and complements the specific recommendations contained in it and also basic rules detailing current regulations, which include legal provisions and European directives and recommended standards (ISO, CEN, UNE), when necessary.

When classifying the results obtained after applying each checklist-guide, the different risk factors considered are divided into just two levels, COULD BE IMPROVED or DEFICIENT. The former includes those that do not play a crucial role in determining the foreseeable damage, even though it is advisable to resolve them. The latter play a crucial part, however, and are thus treated as deficient due to their relevance and involvement in the probability of the event or damage arising. Correlated answers must be given to all questions asked and questions may be missed out only when this is expressly specified in the checklist itself, for example when a situation is not present. A table is included at the end of each questionnaire that allows results to be obtained from the deficiencies detected and a consideration of their implicit importance. In general terms when more than 50% of the risk factors considered deficient are present in the working area analysed, the situation is evaluated as VERY DEFICIENT overall based on this method. In this way, using an easy method of differentiating between risk factors, four situation levels or risk situations are ultimately obtained and the following action levels may therefore be determined: Acceptable, Could be Improved, Deficient and Very Deficient in order to prioritise the actions to be carried out.

It could be argued that this procedure is not precise enough to assess risks rigorously because the two factors determining the risks are not subjected to specific, differential treatment: an initial approximation of the normally expected consequences and their probability of arising can be obtained, albeit indirectly, when the possible deficiencies are classified according to their importance because both factors are implicitly assumed. In any case, the philosophy of the Framework Directive and the Spanish regulations deriving from its application is that risk assessment should simply be a tool for prioritising preventive action based on detected needs and this method achieves this purpose.

An IT application has been designed to make it easier to specifically extend and improve the usefulness of this method in order to turn it into an effective management and control tool that, in turn, allows accident risks – not at all the same thing as psychosocial risks for example – to be assessed using the conventional system mentioned



(probability-consequences) in a flexible, personalised manner as described below.

Users of this application must in the first place define the company's functional units or working areas and the specific checklists they need to apply before going on to complete the checklists: fulfilment of requirements is recorded by registering an affirmative response while a deficiency or risk factor is recorded by registering a negative response. Assessors may add notes for each deficiency where necessary to provide a more effective description and location and also the preventive measure to be applied within the required term and by the assigned manager. With this in mind, the IT application provides a diary (figure 1) to help the manager check that all required actions have been completed. As the image on the attached screen shows (figure 2), the functional units analysed and each of the deficiencies noted in the checklists are organised into a tree, restricting access to users from other departments when considered advisable.



Figure 1



Figure 2



Figure 3

Depending on the type of deficiencies detected and their assessment and the level of exposure to the deficiency, the IT program determines the accident risk probability level and combines this with the level of damaging consequences to calculate the risk level and action level automatically (figure 3).

As an essential tool of the preventive system, risk assessment combined with preventive planning must be updated on a virtually

ongoing basis due to the continuous changes, however minor, that take place in companies. The rule of obligatory prior consideration must also be applied specifically before carrying out a new job or any change, as instructed in the regulations, and on a regular basis in workplaces until it becomes normal routine process. For this reason, methods such as the one described and its associated software play a very useful role in turning a process of systematic risk assessment into a procedure that is easy to apply by all those involved in preventive action, maintaining updated logs at all times.

Ten years after the introduction of the regulations, the application of risk assessment in Spain has made it possible for risks to come to light in most companies and awareness of these risks is growing. External and Internal Risk Prevention Services have played a crucial part in this process since they have been directly responsible for implementing this preventive activity. Despite this, the necessary inclusion of occupational risk prevention within company organisation and activities must be taken a stage further to ensure that methods such as this one become tools that are routinely applied to facilitate communication between managers and workers with a view to ensuring workplaces are increasingly safe, healthy and efficient.

Link for further information:

http://www.mtas.es/insht/information/estudiostec/et_053.htm

The National Institute of Safety and Hygiene at Work (INSHT), which developed the tool discussed above, is the specialised scientific/technical body of the state government administration. Its mission is to analyse and study occupational health and safety conditions, as well as to promote improvements to health and safety. To this end, it cooperates with the competent bodies of the Spanish regional governments.





JULIA LISCHKA

Department for occupational safety and health of the Federal Chamber of Labour, Austria

An Austrian booklet on risk prevention



Since 1995, the Austrian Federal Chamber of Labour (BAK) has published a regularly revised booklet entitled *Identifying Risk – Avoiding Risk* in conjunction

with the Austrian Trade Union Federation (ÖGB) and the Austrian Federal Economic Chamber (WKÖ). The current edition appeared in January 2007.

The booklet is designed to help identify risk in the workplace and includes the most important provisions for examining workstations with respect to safety and health protection. It has a clear format, making it practical for evaluation purposes, and provides background information as well as technical details.

What is the booklet for?

All employers are obliged to carry out a risk identification and assessment in accordance with Section 4 of the Austrian Employee Protection Act (ASchG), to document this pursuant to the Regulation on the Safety and Health Protection Documents (DOK-VO), and to determine risk prevention measures. This booklet aims to help the appropriate professionals such as safety experts and occupational health practitioners in this task.

Health is a person's most valuable possession. Protecting the life and health of employees is one of the most important objectives of representative bodies. Works councils and safety officers (or, if these do not exist, all employees) must have access to these documents so that all employees are aware of the risks at work.

The most important principle of safe work is that only risks which have been detected can be eliminated or minimised. Risk assessment are in the interest of companies because they can significantly lower the costs of industrial accidents and work-related illnesses. Employees and employers benefit from the risk assessment, and it makes it easier for the labour inspectorate to monitor workplaces. According to calculations by the General Accident Insurance Institute (AUVA), each industrial accident costs a company on average EUR 3,300; this results in a figure of approx. EUR 400 million for Austrian companies. Conventional theories state that it would be easy to prevent half of these industrial accidents and to halve the cost burden on companies. Experts have calculated that the national economy loses around EUR 1.5 billion each year as a result of industrial accidents. These figures emphasise the importance for working people, companies and society as a whole of having effective employee protection in place.

Diversity and risk assessment

Like society, the workforce is changing and becoming older. Consideration must be given to this. Risk assessment should include

provision for age-appropriate work, since people have different talents, aptitudes and requirements depending on their stage in life. Diversity holds advantages for everyone if we are aware of it.

Support by industrial psychologists

The components of stress, time pressure, social environment and labour organisation must be incorporated. Industrial psychologists must occupy a central position in employee protection, alongside occupational health practitioners and safety experts, because stress in the workplace, caused by labour organisation, workflows, etc., has become one of the greatest pressures on employees. Stress also gives rise to physical complaints and can trigger work-related illnesses. Studies show that up to 50% of all illnesses are work-related.

Working instructions

Topics dealt with in the booklet range from natural light, artificial light and ventilation, floor space, head space, room height and walls/ceilings, to climate and noise/vibrations. Other topics include signposting, walkways/traffic routes and means of transport, first aid, fire and explosion hazards, electrical installations, hazardous substances, aptitude tests and follow-up tests, storage facilities, working materials, safety clearance, protective devices, personal protective equipment (PPE), lifting and carrying, being tied to the workstation, workbench, screen work, time pressure as a result of requirements, social environment, and protection of non-smokers and those in need of protection.

This is an example of the structure of the introductory explanation:

"Working materials

Working materials are all items required for work, such as tools, machines and operating equipment.

The working materials comply with requirements if they

- comply with the applicable legal provisions,
- take account of the state of the art, ergonomics and occupational medicine,
- are maintained adequately (upkeep, cleaning),
- are installed safely, and
- are used correctly.

If the working materials are hazardous, care should be taken to ensure that only authorised employees who have received the appropriate training (instructions) work with them.

The most frequent injuries when using working materials are cutting injuries, stabbing/pricking injuries, bruises, burns, etc."



Each key word is defined in the first paragraph. Thereby the reader can recognise, if risks such as noise exist at work. Afterwards, important legal paragraphs to this key word are given in full text.

Before beginning the evaluation

It is important to know whether the company regards occupational safety as a business objective or a tiresome duty. If it is a tiresome duty, it is usually carried out half-heartedly and ineffectively.

Companies that see occupational safety as a business objective recognise that investment in occupational safety also makes economic sense. Effective risk assessment need not be expensive. Employers and management know the business better than anyone else. Weak points are easily identified in conjunction with the works council, safety officers and employees. Safety experts and occupational health practitioners can advise on technical or medical questions.

Employees who see that occupational safety and health are taken seriously are more eager to perform and are more motivated. Willingness to perform and motivation are important prerequisites for business success.

Workstation risk assessment template

The template provides an overview of the most frequent risks. Like the log, it can be used for any workstation as a checklist and list of documentation; it may be necessary to expand it as a result of operational conditions. If particular capabilities such as strength or skill are required, it makes sense to assess the workstation on a personal basis; 'people in need of special protection' should be taken into account when doing so.

It is possible to identify when the assessment was carried out and by whom, as well as the department, the reason for the assessment (first evaluation, following an accident, suspicion of a work-related illness, request by labour inspectorate), circumstances and events that suggest a risk, as well as the introduction of new working materials, substances or procedures and advances in the state of the art and structure of the working process.

Several categories are provided: No risk – situation complies with the state required by law; Does not comply with legislation – there is no immediate danger to life and health, the state required by law is to be brought about in the short to medium term; Does not comply with legislation – there is immediate danger to life and health and measures must be taken immediately.

If deficiencies are apparent from the description, it is advisable to carry out a more detailed inspection in accordance with the provisions cited under the key word. The level of danger is then assessed and entered in the checklist, and the data are transferred to the log. Measures are stipulated to remedy the deficiencies. Finally, an entry is made stating when the status was improved.

Log

The log contains a description of the workstation, protective goals and measures that need to be taken. Recurring checks (quality

inspection etc.), specialist knowledge and necessary supervision should be stated. Tests, necessary instructions and specialist knowledge should be recorded. Later on, it can be indicated whether the status was improved or the problem at the workstation remedied.

Safety and health protection document

The draft safety and health protection document for workplaces in which employees did not identify any risks includes the name of the workplace, address, number of employees and an indication that no risks for which protective measures would have to be stipulated were determined.

The safety and health protection document must be reviewed repeatedly and adapted if necessary. People who have been consulted are also mentioned.

There are master copies of the documentation pursuant to Section 5 of the Employee Protection Act; these were issued jointly by the AUVA, BAK and WKÖ in order to provide a standardised form of documentation that is also recognised by the inspecting authority.

The work documents include a set of blank forms which can be used to draw up safety and health protection documents.

The documentation is divided into two parts:

- Safety and health protection document plus sheet of measures as obligatory content of documents (capable of documenting the entire workplace or portions such as workshop, warehouse, office and individual workstations such as circular saw).
- Five enclosure sheets as a resource which can be used as required to fulfil the legal requirements.

Basically, the greater the number of risks, the smaller the size of inspection units that must be chosen and the greater the number of evaluation areas thus obtained.

Companies are free to choose the procedure used to carry out the assessment. Depending on the intended use, the following resources may be used for this purpose, e.g.

- Series of leaflets on identifying and eliminating risks (AUVA)
- *Identifying Risk – Avoiding Risk* (BAK, WKÖ and ÖGB)
- Compact procedure for workstation evaluation (WKÖ)
- Employee Protection in the Office (University of Vienna, Vienna University of Technology, the Union of Salaried Employees (GPA))
- Construction evaluation – initial package and pad as well as construction safety folder (AUVA, Federal Guild of Building Trades, Construction Workers' Holiday and Severance Payment Fund (buak))

Companies are welcome to reprint and use these documents but exploitation for commercial purposes is not permitted.

If Austrian standards (ÖNORMEN), European standards (EN), Austrian Electrotechnical Association (ÖVE) provisions, accident prevention provisions, technical guidelines or other approved technical rules are taken as a basis when stipulating measures for risk prevention, this should be stated (e.g. measures discussed; dealt with in work safety committee; if no work safety committee exists, discussed with safety expert, occupational health practitioner, safety officers and



employee bodies, or, if no work safety committee or safety officers are available, discussed with all employees concerned).

Information on the (personal) workstation may be provided, e.g. are there work bans or restrictions for disabled employees, pregnant women and breastfeeding mothers, young people or apprentices?

Other personal information (e.g. at what age apprentices may be employed; necessary specific capabilities and knowledge; disabilities which preclude working here) may be stated. The questions of whether aptitude tests and follow-up tests are required, of whether proof of specialist knowledge must be provided and whether personal protective equipment (PPE) is necessary must also be clarified. It is important to know whether certain areas with access restrictions need to be identified and precautions are required for serious and immediate risk. It is also of interest if hazardous working materials are used (in this event, a list must be drawn up and enclosed).

It must also be stated whether there are obligations to carry out testing (if so, a list of the working materials should be drawn up and testing and maintenance plans should be enclosed) and whether fire safety regulations, evacuation plans and an explosion protection document are officially prescribed.

Competent persons

The enclosure sheet 'Competent persons' should identify the workstation and persons with internal responsibility for safety and health e.g. the person in charge of assessments, safety officer, safety expert, occupational health practitioner, as well as first aider, fire officer, waste officer, failure officer, poisonous substances officer, laser protection officer, radiation protection officer, lift attendant, boiler attendant, authorised person pursuant to Section 23 of the Work Inspection Act, plant manager, department manager, workshop foreman, works council and the internal office which provides more detailed information about people and services with particular responsibilities in this area.

Work equipment which must be inspected

The enclosure sheet 'List of work equipment which must be inspected' states the work equipment (e.g. forklift, rolling gates, cranes, extraction systems), the place of use (workstation/division), the location where the inspection book is kept and the person who carried out the inspection.

Evaluation pursuant to the Maternity Protection Act

The enclosure sheet 'Evaluation pursuant to the Maternity Protection Act' determines and assesses the risks and their effects on the health and safety of expectant and breastfeeding mothers at workstations, pursuant to Section 2a of the Maternity Protection Act. To this end, the workstation is stated, with an indication that the safety expert and occupational health practitioner should be consulted if necessary, as well as the type of strain, the extent (e.g. noise level), the duration/frequency (e.g. exposure time) and remarks/measures. Impacts such as vibrations, moving heavy loads by hand, noise, extreme cold and heat, movements, postures, radiation, biological and harmful substances (production of auramine, polycyclic

aromatic hydrocarbons, dust, smoke or mist when handling nickel matte, strong acid process when producing isopropyl alcohol) are mentioned.

If the risk assessment reveals possible adverse effects, the nature of the employment may be changed as a suitable measure; if this is objectively impossible or unacceptable, a different workstation must be assigned. If there is no suitable workstation, it must be indicated that the employee is to be granted leave of absence.

Sheet of measures

The sheet of measures records the risk or strain determined for each workstation or a group of workstations of the same type, measures of a technical, organisational or personal nature, and the date of inspection.

Instructions

The 'Instructions' form records the workstation, date, content of the instructions and the person giving the instructions, as well as the date of next instruction.

List of hazardous substances

The enclosure sheet 'List of hazardous substances' lists the workstation, the person gathering the information, the date and the manufacturer, and states whether the substance was examined. The current safety data sheet, the average risk designation, R-phrases/S-phrases (risk classification), threshold values and consumption per unit of time as well as the quantity in the store should be recorded.

Summary

Since the principle of risk prevention can be applied to different sectors, the grids described above do not have to be laboriously drawn up by companies themselves; instead, they can fall back on the templates. To take account of developments in recent years, the social partners have produced a CD-ROM that works under the same principle and contains summarised descriptions, extracts from legal texts, and templates for printing. All in all, the documents provided are very clear and useful.



Julia Lischka works in the department for occupational safety and health of the Federal Chamber of Labour (3.2 million members). She advises employees, evaluates draft legislation and provides training for safety representatives.

Amongst other organisations, she is member of the board and the national network of the EU-OSHA and substitute member of the ACSH.



MARIJA MOLAN, RAJKO ČRNIVEC

University Medical Centre Institute of Occupational, Traffic and Sports Medicine Ljubljana, Slovenia

A Slovenian risk assessment method



This paper sets out the representative method applying to the production, content and use of a safety statement and risk assessment in Slovenia. The risk assessment method was developed by the Institute of Occupational, Traffic and Sports Medicine in Slovenia, and used to define the level of risk to health in various occupations in Slovenian industry. The method is also of assistance in the process of rehabilitating working environments, reducing the level of risk to workers and introducing measures to humanise work.

In 2000, in accordance with the Slovenian and European legislation in force, particularly Directive 89/391/EEC, employers in Slovenia began producing safety statements and risk assessments to improve health and safety at work and to humanise the working environment.

Slovenia uses a number of different methods and techniques for producing risk assessments. The choice of methodology depends on the person drawing it up and the employer who has commissioned it; occasionally the employer will produce the risk assessment himself. It is particularly important, therefore, that the employer understands the purpose and importance of the risk assessment.

The risk assessment method discussed in this paper is based on the Availability-Humanisation model and other previous research and development work carried out mostly at the Institute of Occupational, Traffic and Sports Medicine in Ljubljana.

Background

The approach combines traditional procedures for analysing jobs and occupations, time studies and provisions contained in the legislation in force in Slovenia.

A safety statement is defined in the legislation as a document in which an employer declares in writing that he is implementing all measures aimed at:

- ensuring health and safety at work
- preventing hazards and risks at work
- informing and training workers
- ensuring that instructions are given concerning health and safety in the workplace
- ensuring adequate organisation of work
- ensuring the necessary material means to this end.

The risk assessment, which is a part of the safety statement, is the systematic recording and study of all factors within a work process with the aim of establishing possible causes for workplace injuries, occupational diseases, and identifying ways in which risks to the health and safety of workers in their working environment might be prevented, removed and reduced.

An employer is obliged to update the safety statement every time a new danger is identified and the level of risk changes. The updated statement must take account of all the ecological, technological and organisational changes within the working environment. A safety statement must also be updated whenever new health and safety regulations enter into force in Slovenia.

Content of a Safety statement

A safety statement contains the following:

- the date and place of issue of the statement
- details of the people who took part in producing the safety statement and risk assessment
- details of previous inspections and investigations
- information on the relevant jobs and occupations covered, as well as the employer's organisational units and the number of workers
- a risk assessment
- an organisational chart of people responsible for health and safety at work.

The documentation must be in written form, although it may also contain graphic elements such as diagrams, symbols, drawings and plans.

The risk assessment encompasses:

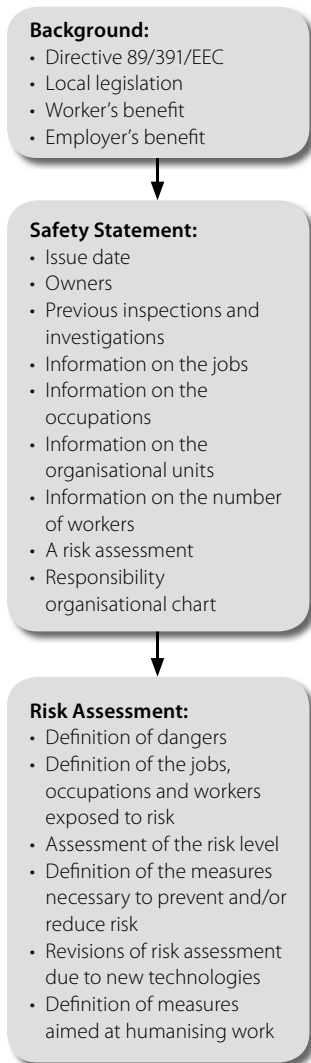
- a definition of dangers
- a definition of the jobs, occupations and workers exposed to risk
- an assessment of the level or degree of risk, as follows: the seriousness and likelihood of injury arising, which depends on the frequency and duration of exposure to danger, the likelihood of a dangerous event occurring, and the technical and other possibilities for avoiding or limiting injury
- a definition of the measures necessary to prevent and/or reduce risk
- revisions resulting from a change to technological processes and the introduction of new technologies
- a definition of measures aimed at humanising work.

Producing the document

An interdisciplinary approach is taken. The group responsible for producing the document is usually made up of the following:



Slovenian Approach to Risk Assessment for Safety Statement



- the authorised physician/occupational medicine specialist who is responsible for workers' health protection
- the authorised person in charge of technical protection at work (specialist)
- the employer/appropriate specialist services (personnel officer, worker, foreman and, as required, a technologist, psychologist and other specialists)
- a psychologist, who must be included when psychological and psychosocial strain is prominent.

The interdisciplinary team studies the ecological, psychological and physiological strains and the identified harmful factors and dangers at work, on the basis of negative indicators of workers' health (health status, disability, assessment of the risk of occupational health problems: injuries at work, occupational diseases) and inspects the workplace. Then the team produces an assessment of the workplace determining the degree of threat to workers' health. On the basis of the risks identified, it prescribes technical, health and psychosocial measures to reduce or remove the risks, which the employer carries out within an appropriate period of time.

All specialists who take part in the production of the document certify their participation by means of their signature.

When the data on harmful factors in the working environment and on working conditions are insufficiently reliable, appropriate measurements must be made. The results of these additional measurements are taken into account in the final version of the risk assessment.

Conclusion

In contrast to the traditional risk assessment methods, the method presented here places considerable emphasis on assessing the psychological work load and work requirements. The desired characteristics and abilities of the individual are also very clearly defined. Special emphasis is placed on preserving availability for work.

Various types of assessment scales are used, all of which are comparable so that the requirements and strains of the job can be matched up with the necessary and desired characteristics, abilities and capabilities of the individual.

The methodology was developed for the needs of the Institute of Occupational Medicine, but occupational physicians are increasingly using it.

The use of the method requires the expert knowledge of a team of specialists. The involvement of the specialists ensures that the assessments have a high degree of validity and are thus easier to justify and enforce.

The original version of the methodology has been revised over the years it has been in use. The method has been used in manufacturing, stoneworking, construction, the electricity industry, healthcare, banking and the military.

A major advantage of the methodology is that it provides a clearly defined starting point for the introduction of individual humanisation measures. Proposed measures deriving from the methodology for ensuring a safe and healthy working environment are formulated for each job or occupation analysed.

Humanisation measures encompass:

- the scope, content and time periods for health examinations, adjusted to the regulations in force
- proposed methods for freeing up movement
- protective measures for work with particularly harmful substances
- proposed qualifications for work involving harmful factors
- eye relaxation exercises
- the introduction of protective vaccination for exposed workers
- training to deal with conflict and stress
- the proposed introduction of progressive relaxation to alleviate psychological stress
- proposed training methods to preserve the individual's capacity for work
- proposed reorganisation and introduction of rotation of workers and a higher level of flexibility
- adaptation of the working environment for disabled workers with special attention to specific individual disabilities and limitations.



The result of the procedure is an analysis of the level of threat to health presented by jobs and occupations. This enables optimal measures to be put in force to combat these threats. Working conditions are thereby improved because the risk of occupational health problems, disability and specific mortality is reduced; in other words, work is humanised.

Among the humanisation measures, special emphasis is placed on measures relating to the preservation of availability for work and the prevention of the use of psychoactive substances at the workplace, which has proved to have made a major contribution in the risk assessments produced so far. This is a special feature of the presented methodology.

In view of the rising numbers of people employed in service activities, many of the measures are aimed at reducing psychological strains and controlling psychosocial risks. These are primarily intended to enhance wellbeing, increase availability for work and preserve individuals' long-term capacity for work, regardless of the working environment.

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Ass. Prof. Marija Molan has worked as an occupational psychologist at the Institute for occupational health in Ljubljana for 30 years. Her research, development and professional work has focused on workers in the work environment, with special emphasis on the reduction of psychological work loads, fatigue and measures to ensure

adequate availability of workers by humanising the work environment.



Rajko Črnivec, MD, MSc, specialist in occupational, traffic and sports medicine, has been employed at the Clinical Institute of Occupational, Traffic and Sports Medicine of the University Clinical Centre, Ljubljana, for 33 years. He provides specialist outpatient services in the area of the

assessment of the ability to work and in the area of workers' and road users' health care. He also serves as an individual and group consultant on occupational diseases.



HELENA KALLIOLINNA, HANNU ALÉN

Ministry of Social Affairs and Health, Department of Occupational Safety and Health, Finland

Developing workplace risk assessment in Finland



In Finland, systematic risk assessment in the field of occupational safety and health (OSH) started with the prevention of major accidents. Over the years the focus has shifted to the assessment of working conditions and prevention of accidents, whether minor or major. Today workplace risk assessments are required by law, but more and more companies are also making efforts to improve their safety on a voluntary basis.

Major accidents

In Finland, systematic risk assessment in the field of OSH began in the process industry. An explosion at the Lapua Cartridge Factory in 1976 that killed 40 employees and hospitalised 69¹ led to a demand for greater efforts to prevent accidents. This also had a major influence on risk assessment in general.

Currently, all companies whose operations pose major accident hazards involving dangerous substances must draw up a safety report and safety policy, of which risk assessment is an important part. The requirement set down in the Seveso II directive² was added to Finnish legislation for the first time in 1991 and in its current form in 1999.³ Nowadays there are 128 operators in Finland who draw up the report. In addition there are 121 operators who draw up a major-accident prevention policy, where the operators' principles for preventing major-accidents and other accidents are explained.

Occupational safety

The accident at the Lapua Cartridge Factory also gave rise to a Nordic risk analysis project. Participants representing state authorities, research institutes, insurance companies and industry from Finland, Sweden, Norway, Denmark and Iceland took part in the

project. Its aim was to produce risk assessment methods for the industrial sector.

The Finnish members of the Nordic risk analysis project founded the Finnish Risk Analysis Society in 1982. Its goal is to promote the debate on safety and risk analysis, risk assessment, safety and environmental management and audits. It works actively to bring about changes in legislation and to provide necessary training on risk assessment. At first, the society concentrated on the prevention of major accidents but its focus has shifted more to occupational safety risk assessment.⁴

After Finland joined the European Union in 1995, the national debate on risk assessment took on a new dimension. To encourage Finnish companies to carry out risk assessments, the health and safety administration published or distributed several guides and tools for risk assessment. The most important were:

- Risk assessment at work, EU-guide.⁵ A translation of a guide produced by the EU.
- Risk assessment. A guide to the assessment of risks.⁶ A short guide to the basic principles of risk assessment.
- Risk assessment at the workplace – workbook.⁷ A simple tool for the recognition and evaluation of risks. The workbook covers five topics: physical factors, mental load, ergonomics, dangers of accidents, and biological and chemical factors. The tool was also developed into a computer-based version, Riski-Arvi.
- Pk-rh.⁸ A website designed to support small and medium-sized enterprises in risk assessment. The site was funded mainly by the European Social Fund (ESF). Parts of the site have been translated into English, Swedish and German, among other European languages.
- Industry-specific Safety Check – tools⁹
- Risk assessment in the improvement of working conditions.¹⁰ A literature review aiming to clarify the concept of risk.

The EU Framework Directive on occupational safety and health requires risk assessment to be carried out in all companies. The Finnish Occupational Safety Act¹¹ has included this requirement since

⁴ The Finnish Risk Analysis Society (2007), available at: <http://virtual.vtt.fi/riskianalysiseura/>

⁵ Riskien arviointi työssä. EU-opas. Työsuojeluhallinto.

⁶ Riskien arviointi. Työsuojeluhallinnon esitesarja, TM 5.079, 11pp.

⁷ Murtonen, M. (2003), Riskien arviointi työpaikalla. Työkirja. Ministry of Social Affairs and Health, Tampere.

⁸ Pk-rh. Risk Management in SMEs. <http://www.pk-rh.com/>

⁹ Finnish Institute of Occupational Health, Industry-specific Safety Check – tools. Available at: <http://www.ttl.fi/Internet/Suomi/Palvelut/Lisatieto+palveluista/Tyoturvallisuus/Safety+check/>

¹⁰ Ala-Riksu, M., Mattila, M., Uusitalo, T., Kivistö-Rahnasto, J. (1996), Riskin arviointi työolojen parantamisessa. Työhallinnon julkaisu 121. Työministeriö, Tampere, 54pp.

¹¹ Occupational Safety Act (299/1958).

¹ Lapuan patruunatehtaan räjähdysnettomuuden tutkijalautakunnan tutkimusselostus (1978), Helsinki, 161pp.

² The Seveso II Directive is intended to prevent major accidents involving dangerous substances and limit their consequences for man and the environment, with a view to ensuring high levels of protection throughout the Community.

³ Government Decree on Industrial Handling and Storing of Chemicals (59/1999).



1987, but its provisions were not clearly expressed and it had not been actively enforced. Matters were clarified early in 2003, when the amended Occupational Safety Act came into force. The Act states that all companies having at least one employee or a communal workplace must 'systematically and adequately analyse and identify the hazards and risk factors caused by work, the work premises, other aspects of the working environment and the working conditions and, if the hazards and risk factors cannot be eliminated, assess their consequences to the employees' safety and health'.¹²

Making risk assessment a legal requirement has encouraged the development of various risk assessment methods. The method development has increased every time a new demand has been written into legislation, and therefore different risk assessment methods for different areas (e.g. ergonomics, mental load) are now widely available.

Occupational health care

In Finland, all companies must provide occupational health care for their employees. The Occupational Health Care Act¹³ states that occupational health care personnel must carry out a workplace investigation in all companies. Investigations have been performed in approximately 80% of Finnish workplaces employing 10 or more people.¹⁴ The workplace investigation includes:

"Investigation and assessment of the healthiness and safety of the work and the working conditions through repeated workplace visits and using other occupational health care methods, having regard to the exposure to substances in the workplace, the workload, the working arrangements and the risk of accidents and violence, and taking these factors into account in planning the work, working methods and work spaces and in situations in which the working conditions are changing".¹⁵

Connecting the workplace investigation to occupational safety risk assessment enables the company to take advantage of the expertise of the occupational health care personnel and hence increases the quality of the risk assessment. Combining the two assessments also minimises duplication of work.

Occupational safety inspection

In 1999 the Ministry of Social Affairs and Health organised a comprehensive risk assessment training programme for occupational safety inspectors. The goal of the training was to clarify the risk assessment procedure in companies. Representatives of companies also participated in the training.

The first training session, attended by both occupational safety inspectors and company representatives, focused on making plans for carrying out risk assessments. After the training, companies

carried out risk assessments independently and the inspectors later visited them to evaluate the assessments.

The second training session was arranged three months after the first one. After the second session the companies continued with their assessments and the inspectors visited them again. A closing seminar was organised after three months. After the closing seminar, a separate discussion was held with the occupational safety inspectors.

The occupational safety inspectors considered the training to be very successful. They felt that working in conjunction with companies had enabled them to gain a much more practical outlook on risk assessment.¹⁶

Based on the experience gained during the training, the Ministry of Social Affairs and Health set out the minimum demands for risk assessment. Preventing occupational accidents is one of the three main focal areas of occupational safety inspections. In 2004-2007, the inspections focused on the supervision of occupational safety management procedures based on risk assessments and working conditions in the most hazardous industries: construction, metal production, timber and wood production, and the food and drinks industries.

From 2008 to 2011 the inspectorate will focus on the implementation of risk assessment in the workplace. The main areas of concern are: controlling the risk of customer violence, lifts and transfers made by hand, repetitive work and safety management of particularly high-risk areas.¹⁷

Quantity and quality of risk assessment

Enforcement of the Occupational Safety Act was investigated in 2005-2006. According to a questionnaire sent to industrial safety officers and delegates, 81% of Finnish companies – mainly those with over ten employees – have identified the hazards and risk factors posed by the work environment and 74% have assessed their consequences to employees' safety and health. Similar studies were not carried out before the law came into force, but based on sector-



¹² Occupational Safety Act (738/2002).

¹³ The Occupational Health Care Act (1383/2001).

¹⁴ The Central Organisation of Finnish Trade Unions, (2007), SAK:n työsuojelukysely 2007. Available at: http://www.sak.fi/suomi/ServiceServlet?type=attachment&source=SAKA_attachments&id=489 and The Finnish Metalworkers' Union (2007), Kysely työsuojeluvaltuutetuille12/2006-01/2007. Available at: http://www.metalliliitto.fi/attachments/Tutkimukset/ts_kysely2007.pdf

¹⁵ The Occupational Health Care Act (1383/2001).

¹⁶ Varonen, U., Lanne, M. (2000), Raportti sosiaali- ja terveysministeriön työsuojeluosaston riskinarviointikoulutuksesta. Työsuojelujulkaisu 43. Ministry of Social Affairs and Health, Tampere, 13pp.

¹⁷ Ministry of Social Affairs and Health (2007), Työsuojelupiirien tulostavoitteet 2008-2011. Työsuojelupiirien tulostavoitteet työryhmän muistio. Helsinki, 16pp.



specific studies, it seems that the number of companies complying has increased.¹⁸

Since risk assessment has become compulsory, the number and variety of risk assessment methods has increased. For example, more industry-specific methods are now available. In the development of these methods, the typical risks of the specific industry have been identified. In addition to risk assessment methods, tools have been developed to audit the level of internal safety in an organisation. This has led to the formation of various different networks and safety competitions, which are popular among companies. For example, the application used in construction sites won a European Good Practice Award in 2004.¹⁹

As a large variety of different risk assessment tools is available, the focus has shifted from the development of these tools into bringing them to use. To make risk assessment tools more accessible to businesses they have been placed on a website called 'Menetelmäpakki' (Method kit).²⁰ Another website is also being developed especially for SMEs. This site will guide its users through the whole risk management in a simple and straightforward manner. The site is based on the results of a study in which 224 OSH improvement methods were evaluated according to how suitable they were for SMEs.²¹

The implementation and quality of risk assessments varies considerably. This problem has been recognised by industrial safety inspectors and in studies of both occupational safety risk assessments²² and major-accident prevention policies.²³ There has always been debate on the characteristics of good risk assessment,²⁴ but the topic has increased in importance as risk assessment has become more common.

Conclusions

Based on the experiences gained in the process, there are three main principles in embedding the risk assessment so that it becomes a routine procedure for a company:

1. Simple and easy-to-use risk assessment methods must be available, because companies do not have many resources to perform the assessment – particularly if it is the first time they are doing so. Advanced technology can help simplify the task.

2. Hierarchical methods must be available, so that the companies can carry out more precise assessments of the topics they consider problematic and as they make progress in developing their occupational safety.
3. The employees must be included in the assessment process to ensure their commitment to improving safety, and to increase their risk awareness.

The actual risk assessment process is very different in different companies. Businesses have different organisational structures, needs, risks, and resources, so the same methods do not suit everyone. The best results are attained when the risk assessment is properly planned and the company's own needs are taken into account in the planning. Risk assessment methods are usually developed to suit as many companies as possible. To get the best possible results the chosen method should be adapted to suit the business's own purposes. In this way, resources can be directed to the most problematic areas.

In developing risk assessment methods, the biggest challenge at the moment is to improve their quality and ease of use. This should in turn increase the quantity and quality of risk assessments carried out. However, other means will also be required, for example creating a functional support network for companies that want to improve their safety record, and increasing the significance of risk assessments in inspections. The basic challenge is to change the old norm-based way of thinking to more self-directed risk management, and to persuade companies of the benefits they will gain by systematically assessing their risks.



Helena Kalliolinna is a Senior Officer at the Finnish Ministry of Social Affairs and Health. She works mainly with risk management and prevention of occupational accidents. She graduated from the Tampere University of Technology majoring in Occupational Safety Engineering.



Hannu Alén is a Ministerial Adviser at the Finnish Ministry of Social Affairs and Health. He is an expert in the field of OSH management and prevention of major accidents. He was involved in the founding of the Finnish Risk Analysis Society and is the chairman of the Risk management in SMEs' (Pk-rh

–foorumi in Finnish) working committee. He has promoted risk assessment work in Finland.

¹⁸ Salminen, S., Ruotsala, R., Vorne, J., Saari, J. (2007), Työturvallisuuslain toimeenpano työpaikoilla. Selvityksiä 2007:4. Ministry of Social Affairs and Health, Helsinki. 87pp.

¹⁹ European Agency for Safety and Health at Work (2004), *Building in Safety – Prevention of risks in construction – in practice*. Office for Official Publications of the European Communities, Luxembourg. 64pp. Available at: <http://osha.europa.eu/publications/reports/108>.

²⁰ Finnish Institute of Occupational Health (2007), Menetelmäpakki. Available at: <http://www.ttl.fi/Internet/Suomi/Palvelut/Tietokannat/Menetelmäpakki/>

²¹ Koskela, M., Kalliolinna, H., Päivinen, M. (2007), Evaluation of safety improvement methods for small and medium-sized companies. The 17th Nordic Research Conference on Safety – Abstracts, pp.11-12. http://www.ttl.fi/NR/rdonlyres/0A151C7F-D87A-415E-9925-EF6B2735A568/0/NoFS2007_abstracts.pdf

²² Heikkilä, A.-M., Murtonen, M., Nissilä, M., Virolainen, K., Hämäläinen, P. (2007), Riskianalyysin laatu: Vaatimukset tilaajalle ja toteuttajalle. VTT, Tampere, 36pp. Available at: http://www.vtt.fi/inf/julkaisut/muut/2007/Tutkimusraportti_VTT_R_03718_07.pdf

²³ Gilbert, Y. & Raivio, T. YRTTI – Yhteiset riskiarviointiperusteet turvallisuus selvityksille. Gaia Consulting Oy. Available at: http://www.tukes.fi/tiedostot/vaaralliset_aineet/esitteet_ja_opaat/yrttihanke_loppuraportti.pdf

²⁴ Rouhiainen, V. (1990), *The quality assessment of safety analysis*, Technical Research Centre of Finland, Publications 61. Espoo, 133pp. and Murtonen, M., Halme, H., Alén, H. (2001), Millainen on hyvä riskien arviointi?, Muistio 1999-2001.



RUEDI HAUSER

Swiss Accident Insurance Fund (Suva), Switzerland

The Hazards Portfolio as a tool in the risk management process

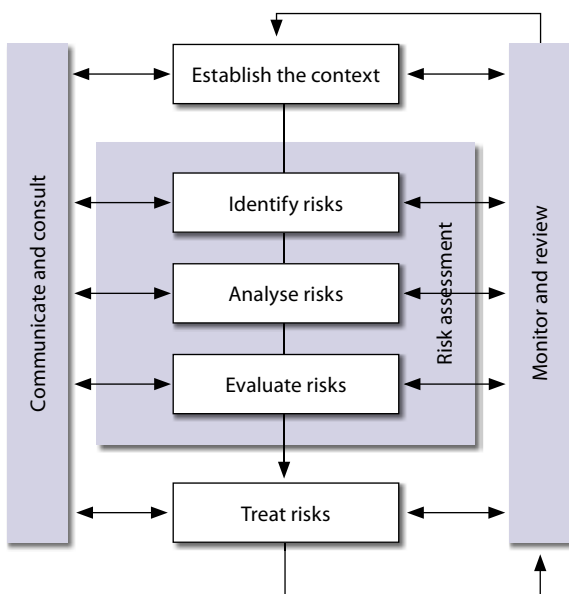


Every senior management team tries to protect its company and ensure its sustained success. Managing business risks is an indispensable means to that end – just as important as seizing business opportunities. This basic need has given rise to the development of standards that describe the process of risk management.

The risk management process as described in AS/NZS 4360

The process of risk management is presented very clearly and comprehensively in standard AS/NZS 4360. This will also be the model for the description of the process in the future international standard ISO 31000. Figure 1 shows a simplified version of the process.

Figure 1 Risk management process as described in AS/NZS 4360/2004



If risk management is to be accepted and have a sustainable impact at all levels of company activity, the process must be embedded in the company's management system, from its business policy to its quality control mechanisms.

Integrating occupational health and safety into risk management

There are many different kinds of business risk, and occupational health and safety is one of them. We believe it is both right and proper that occupational health and safety should be integrated into corporate risk-management systems. In practice, however, some companies' risk management strategies do not cover the risks of accident and illness. The reason for this may be that these risks are normally well covered by statutory insurance policies. They do not jeopardise the existence of companies and so are frequently assigned a low priority for purely economic reasons.

The Zurich Risk Management System (ZRMS) shows that accidents and illness must be taken into account as a major source of risk. Business losses arising from an accident are often concealed until other factors such as business interruption are taken into account.

Figure 2 Structure and categorisation of corporate risks as described in the Zurich Risk Management System (ZRMS) (Zurich, RMS – 4.2000)

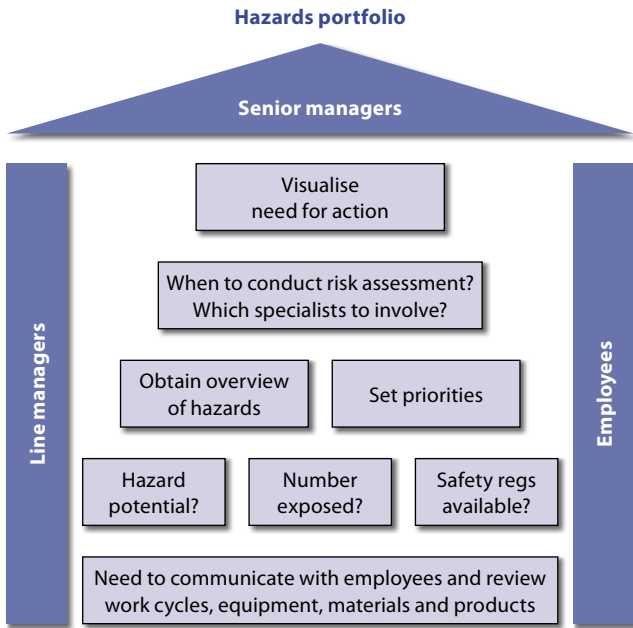
Zurich Risk Management System: Corporate risks		
Strategic risks:	Market risks	Financial risks
Business risks (speculative risks)		
Products and services	Interest rates	Cash flow
Markets	Exchange rates	Investment
Mergers and acquisitions	Inflation	Financial stakes
Management skills	Market entries	Funding
...
Operational risks (pure risks)		
Product liability	Fire	Business interruption
Accidents and illnesses	Environmental damage	Conventional penalties
...

Using the Hazards Portfolio to recognise, treat and monitor risks to occupational safety

In spite of the permanent limited availability of resources, a good senior management team must ensure that the responsible and challenging task of recognising, treating, monitoring and reducing risks is performed properly.



Figure 3 Purpose of the Hazards Portfolio for the various stakeholders in a company



The Hazards Portfolio was devised by the Swiss Accident Insurance Fund (Suva) as a toolkit for risk management in the field of occupational health and safety. It enables hazards and their potential impact to be seen at a glance. This information helps

managers make and prioritise the necessary decisions quickly and efficiently.

The Hazards Portfolio is managed by the company's health and safety officer with the collaboration and consultation of the line managers and the workforce. The portfolio is intended to meet the various health and safety needs of all employees within the company.

- Employees are entitled to protection at work. They are required to follow all safety instructions. If they are to recognise the value of safety measures, they must be aware of the underlying risks.
- Line managers are responsible for health and safety at work and therefore require the same information.
- Senior managers need to see the whole picture so that they can initiate action and fulfil their role as guarantors of occupational health and safety.

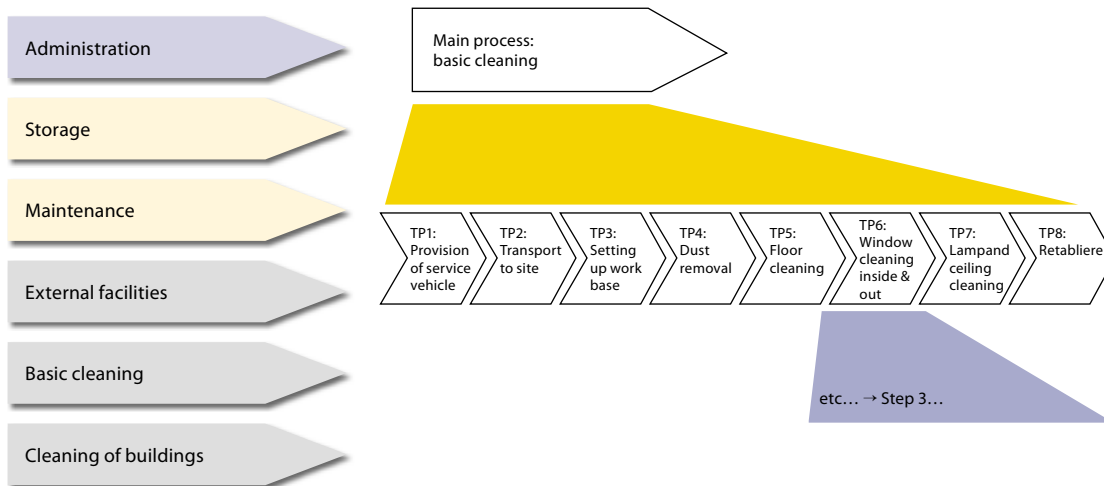
Four steps to drawing up the Hazards Portfolio

Step 1: Establish the context

The process map and standard operating procedures (SOPs) forming part of the management system serve as the basis for the Hazards Portfolio. It is advisable, however, to refine the structure and break down the main processes into their component elements. Items should be selected in such a way that the systematic treatment of the process goes from the general to the particular.

Figure 4 The Hazards Portfolio is based on the company's process architecture

Process model — "Clean plc"



Main processes

Division in process elements

Step 2: Compile hazard registers

The main operational benefit for any company derives from the hazard register drawn up for each item. The SOPs provide further information about the process and the equipment and materials in use. These and other aspects are rated and the hazards associated with them are systematically identified, which enables the potential danger to be assessed. The number of people exposed to each hazard serves as a potential basis for prioritisation.

Once the hazards have been identified, the company can search for the relevant best practice in reducing the risk of each hazard, and decide whether the identified practices are sufficient to ensure that its work can be performed safely.

Depending on the situation, it may be necessary to enlist the help of other experts, including specialists in occupational health and safety.



Figure 5 The risk register catalogues all relevant information on hazards inherent in the relevant process or process element

Form 1.6 Hazard register T6: Window cleaning	
Company:	Clean plc
Process:	Basic cleaning
Type of operation:	Normal operation / Special operation
Provider(s):	R. Hauser, R. Burri
Date:	19 April 2005
Process element or activity involving basic hazard:	T6: Window cleaning
Verified by ASA:	Yes
Number of exposed persons	20



No	Work processes, equipment and materials	Hazard	Risk potential		Recognised health & safety rules available? Please specify	Sufficient H&S coverage?		Specialists involved? Please specify
			high	low		Yes	No, partly	
6.1	Cleaning windows inside and out in the normal working environment of a company	Strains related to bad posture Climatic conditions Operating height Vehicle and pedestrian traffic	X		CL: 67045 CL: 67001 CL: 67005 CL: 67090		X	Ergonomist
6.2	Ladders, mobile scaffold towers, steam cleaners (10 atm.), telescopic cleaning kits	Equipment power supply Swaying Steam		x	CL: 67028 CL: 67067 Conformity certificate Operating instructions			x
6.3	Cleaning solutions, foam cleaners, solvents and coolant sprays	Allergenic and flammable liquids	X		SB: Foam cleaner and wax remover CL: 67012 RL: 1825	X		

Step 3: Present the hazards portfolio graphically

The information from the risk registers is depicted for the management team in a compact graphic form in which each hazard is depicted as a circle.

The level of priority is indicated by the size of the circle; the prioritisation of risks within each quadrant of the graph is based primarily on the number of people exposed. Specific features of the company in question also have to be taken into consideration. If, for example, a hazard has the potential to cause fatalities (e.g. in an accident involving a toxic substance), it would be prudent to adapt the prioritisation model and enlarge the circle accordingly.

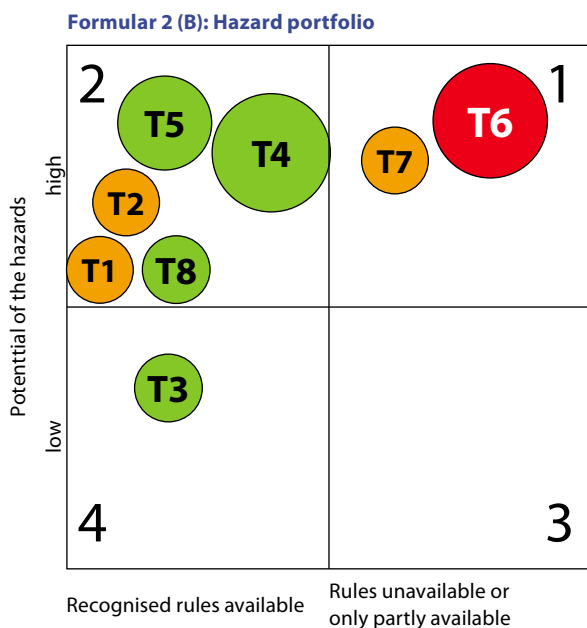
Quadrant 1:

Commission specialised risk assessment; monitor and review

When a company carries out a critical process with the potential for serious accidents that could damage the company as a whole and for which no adequate rules are known to exist, a more thorough risk assessment is required for that critical process. The risk assessment is commissioned by the senior management team, and its performance is monitored. The method, derived from the assessment of managing such critical processes (see step 4 below) is also monitored by the senior management team.



Figure 6 The Hazards Portfolio is an excellent means of focusing on essential information. On Form 2, the hazards are divided up according to their potential risk. The processes requiring risk assessment are isolated in quadrant 1 (top right)



Company: Clean plc
Process: Basic cleaning
Type of operation: Normal operation
Basic hazards:
B1: Ergonomical problems
B2: Sharp edges
B3: Working alone
Process-items:
T1: Provision of service vehicle
T2: Transport to work site
T3: Setting up work base
T4: Dust removal
T5: Floor cleaning
T6: Window cleaning, inside+outside
T7: Lamp and ceiling cleaning
T8: Restoring site

This systematic reduction of all the many occupational health and safety risks to the critical risks that most affect the company enables its management to focus its resources. That way, risk assessments can focus on the critical hazards, which rationalises the expensive and time-consuming process of analysis.

*Quadrants 2, 3 and 4:
Delegate to line managers; define powers and responsibilities*

If rules are available, their implementation, enforcement and monitoring is the task of line managers. If the risk potential is low – if, for instance, the energy input in a given work process precludes any serious or permanent damage – senior management can relieve itself of responsibility and can also delegate its supervisory role to line managers.

Step 4: Recognise gaps and divergences – take measures – define checkpoints

The safe performance of work processes relies on the practical application of the rules and regulations, whether they are formal laws or rules formulated on the basis of risk assessments. The senior management team must satisfy itself that line managers are ensuring compliance with the rules in their respective spheres of influence, are implementing the required measures and are making sure that those measures remain effective.

In practice, however, it is apparent that there are frequent deviations from the rules. The task of line managers is to recognise these deviations and to take the requisite corrective action, be it technical, organisational or employee-related.

To verify the effectiveness of new measures and above all to ensure their sustainability, it is recommended to designate ‘checkpoints’ – small in number but highly indicative – which are to be described in the process documentation.

Although appropriate measures and rules applicable to the company concerned can normally be devised for processes located in quadrant 1, these processes are often vulnerable to a high residual risk. In these cases the designation of critical checkpoints in the process documentation serves as written evidence of compliance with safety rules or the application of requested safety measures.

Delegation to line management does not imply that members of the senior management team can forget about hazards. They remain the guarantors of health and safety at work. The Hazards Portfolio format enables them to monitor critical work processes at defined checkpoints.

The fact that the circles in the portfolio grid are in the traffic-light colours of red, amber and green symbolises the health and safety status of the process element concerned:

- Red:
 - A risk assessment has not yet been performed.
 - The process entails risks that could endanger the existence of the company.
 - Active surveillance by senior management is required, i.e. prescribing preventive measures, designating persons with special responsibility, setting deadlines and verifying compliance.
- Amber:
 - The risk assessment is to be reviewed whenever the process is started.
 - The process contains critical checkpoints.
 - Line managers must report regularly to the senior management team.
- Green:
 - Checkpoints have been defined.
 - Experience has consistently shown the process to be safe.
 - Monitoring by means of standard audits.



From Hazards Portfolio to Risk Portfolio

Management of all risks inherent in a company's activity is far more complex than merely examining health and safety risks in isolation. If a risk management system is to be efficient and effective, then the number of risks to be kept under observation must be limited. Filtering out the relevant risks is the biggest challenge.

The Hazards-Portfolio System is ideally suited for small and medium-sized production companies. For the purpose of recording and presenting all business risks, only a few adjustments are necessary to convert the hazards portfolio into a risk portfolio.

Step 1: Establish the context

As in the Hazards Portfolio, the Risk Portfolio is based on the process architecture underlying the management system.

Step 2: Produce risk registers

A risk register is produced for each and every item to be examined:

- a. What risks are inherent in the process being examined?
Structured description of risks by risk category, e.g.
 - strategic risks
 - market risks
 - financial risks
 - operational risks
- b. What are the potential and implications of the hazard or risk?
 - Low: the occurrence would have only internal consequences
 - High: the occurrence would have a public impact and threaten the company's existence
- c. How good are the current rules?
 - Adequate and applicable
 - Inadequate
- d. How competent is the assessment team?
 - Should the assistance of additional specialists be enlisted?

Step 3: Present the Risk Portfolio graphically

Position the process elements in the portfolio grid:

- a. Assign priorities:

The size of the circles is determined by two factors, namely the exposure time and the likelihood of occurrence during that

exposure time. It is recommended that estimation of the likelihood of occurrence is done in broad categories, e.g. 30, 60 and 100%.

- b. Position circles in the prioritisation quadrants:

1. Important and urgent: potential high, absence of rules
→ A more thorough risk assessment is needed
2. Important: potential high, rules adequate
→ Care must be taken to ensure the rules are applied
3. Urgent: potential low, absence of rules
→ Suitable practical rules must be formulated
4. Potential low, process covered by existing rules
→ No need for action

Step 4: Recognise gaps and divergences – take measures – define checkpoints

The use of the traffic light colours is especially effective when the described method is used in the risk portfolio system. For each observed group of risks a circle segment is defined and coloured accordingly.

Summary

The Suva Hazards Portfolio displays the way in which a company manages the hazards inherent in the nature of its operations. We believe the system is particularly well-suited to manufacturing companies, enabling them to present all business risks and to manage the risks that are critical for their survival.

Risk assessment is one of the key requirements of the risk management system as described in the applicable standards. There are many risk assessment methods available, but not all of them provide a direct link between the company's risk management process and peripheral factors such as communication and constant monitoring. The Hazards Portfolio, extended into a Risk Portfolio, is a systematic and effective tool that is ideally suited to do just this.

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Risk Management, Standards Association of Australia, AS/NZS 4360:2004

Suva, Kennen Sie das Gefahrenpotenzial im Betrieb?, Order No 66105 <http://www.suva.ch/sicherheitssystem>



Ruedi Hauser is a mechanical engineer at Suva's education centre for safety specialists and safety engineers. This training constitutes a major contribution by Suva to accident prevention in Swiss companies. Mr Hauser's main focus is on systematic hazard identification and risk assessment in the workplace.



ADRIANO PAPALE, FRANCESCA GROSSO

National Institute for Occupational Safety and Prevention (ISPESL), Department of Organisation Processes, Italy

Manual handling of hospital patients: an Italian risk assessment method



The protection of workers employed in the manual handling of loads is governed by the EU Directive 90/269 establishing 'the minimum health and safety requirements for the manual handling of loads where there is a risk particularly of back injury to workers'. This is implemented in Italy in accordance with Legislative Decree 626/94, Title V, articles. 47, 48, 49 and Annex VI.

The main objective of the Directive is the elimination of risk (assessing whether operations can be completely mechanised and automated).

In hospitals, and in particular when assisting non self-sufficient patients, this requirement cannot be applied. Therefore, before prevention activities can be carried out a suitable and thorough risk assessment must be performed to identify any prevention measures to be implemented (adoption of specific aids and procedures, health surveillance, workers' training) with the purpose of reducing risk.

On one hand, identifying and assessing risks (risk Yes/No) is comparatively easy, because the presence of non self-sufficient patients and the absence of suitable aids clearly show that there is a risk. It is more difficult, however, to assess risks accurately and analytically, in particular when such assessment is intended to define the different levels of exposure and direct prevention actions.

When it comes to the manual handling of patients, the most popular and widespread analytical methods of assessing the handling of inanimate loads are difficult to apply and not very helpful (e.g. the NIOSH for tasks or the Snook and Ciriello tables for pulling, carrying, pushing and handling tasks).

The NIOSH lifting equation is optimised for the analysis of stereotyped and repetitive movements, such as those performed in the industrial sector, being focused mainly on the accurate definition of ergonomic parameters specific for each lifting operation. Thus, this method allows the comprehensive assessment of a single handling operation, when all the characteristics of the operation are known. As a result, this assessment can be applied effectively to

situations where the worker performs a finite number of similar lifting actions, even though not exactly identical, over the period of time considered. However, its applicability is greatly limited when significant differences arise in the handling operations, especially when the pattern of movement is not known.

Moreover, the procedure aimed at determining the recommended weight limit can be applied only under the following conditions:

- lifting loads while standing (not while sitting or kneeling) in unconfined space
- lifting loads using both hands
- other minimal manual handling (carrying, pulling and pushing) operations
- adequate friction between feet (shoe soles) and floor (coefficient of static friction > 0,4)
- lifting tasks not performed quickly
- load not excessively cold or hot, not dirty or with unstable content
- favourable microclimatic conditions.

The NIOSH method cannot be easily applied when it comes to the handling of patients in hospitals and other institutions, because the circumstances are so varied and the parameters are almost impossible to define. Patients may be considered as an atypical 'load' given their heavy weight, instability, high mobility, and difficulty in being held.

Moreover, this method does not take into account a number of factors that could provide invaluable information and data on the actual workload performed by the worker with reference to the type of hospital ward where job duties are carried out, its specific structural characteristics as well as the nature of the work organisation.

In assessing risks related to the manual handling of patients, the simultaneous presence of several factors thus influencing the level of risk must be taken into consideration. These include the kind of patients and seriousness of their disability, type of handling operations required, daily frequency of lifting tasks, induced nursing load, availability of nursing staff, building and logistics structure, availability of suitable equipment as well as the interaction of these factors.

To make a quantitative assessment of the level of risk faced by hospital staff responsible for manual handling of patients, the Ergonomics of Posture and Movement (EPM) Research Unit of the Centre for Occupational Medicine at ICP hospital in Milan has developed the MAPO index (Movement and Assistance of Hospital Patients).

The MAPO index is a comprehensive index including in its formula all the factors that mostly contribute to determine the risks from patient



manual handling, and thus it can direct the relevant prevention actions.

The MAPO index is calculated using the formula below:

$$\text{MAPO index} = (\text{NC}/\text{Op} \times \text{FS} + \text{PC}/\text{Op} \times \text{FA}) \times \text{FC} \times \text{Famb} \times \text{FF}$$

where:

NC/Op is the ratio of the number of Non-Cooperative patients in the hospital ward to the number of workers operating during the three shifts and **PC/Op** is the ratio of Partially Cooperative patients to the workers operating in the course of the three shifts.

From the hospitalization records it is possible to find out the average and the 'peak' number of non self-sufficient patients staying in the ward. Then, according to residual motorial abilities and type of disease, non self-sufficient patients are further sorted in 'totally non-cooperative' patients (who are not able to use their own upper and lower limbs) and 'partially cooperative' patients (having residual motorial abilities).

These ratios indicate the number of operations involving carrying or lifting tasks that must be performed by the workers.

FS represents the hoisting factor. The assessment of hoisting equipment takes into consideration two aspects: if their number is sufficient with reference to the number of totally non-cooperative patients, and if they can meet the ward requirements effectively. Their number is deemed to be sufficient if there is at least one hoisting device for every eight totally non-cooperative patients.

The hoisting equipment is not able to meet the requirements of the ward if:

- it cannot be used for the type of patients usually hospitalised in the ward
- it is not working properly and needs maintenance
- it cannot be used because of the environmental characteristics of hospital bedrooms and/or related bathrooms.

The value assigned to the hoisting factor (FS) may vary from 0.5 (presence of a sufficient number of suitable hoisting equipment) to 4 (lack of hoisting equipment or insufficient hoisting devices and unsuitable equipment).

FA represents the minor aid factor; that is, all equipment reducing the frequency or the overload caused by specific tasks required to partially move the patient (e.g. sliding sheets, transfer disc, rollers, ergonomic belts). According to the EPM, these aids are considered to be in a sufficient number when the hospital ward is equipped with three different types of such devices. The value assigned to the minor aid factor may vary from 0.5 (ideal conditions) to 2 (critical conditions).

FC represents the wheelchair factor.

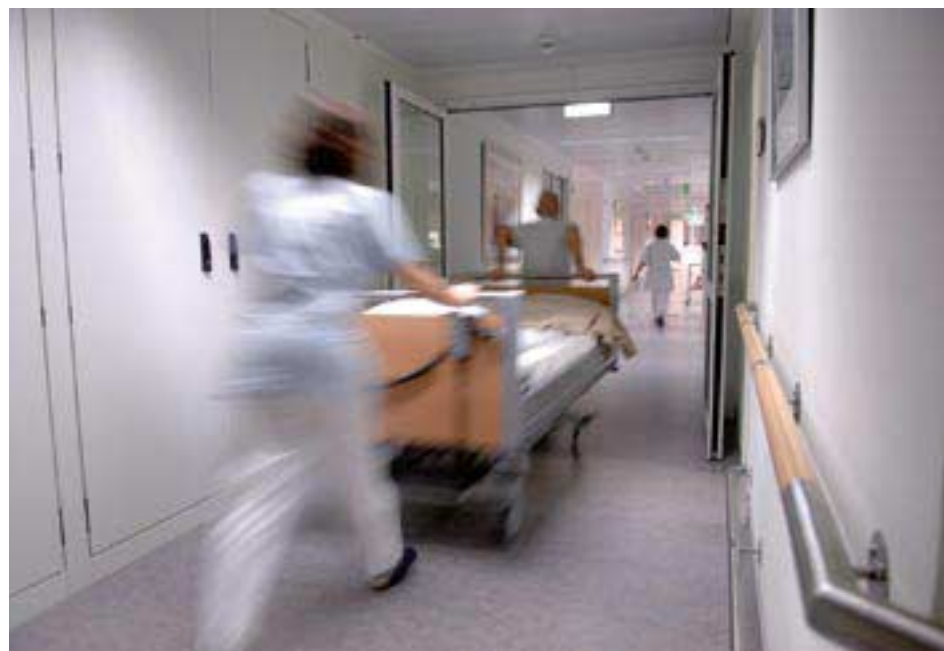
The assessment of wheelchairs and/or commode chairs analyses two different aspects and their interactions: if their number is sufficient with reference to the number of non self-sufficient patients as well as the presence of ergonomic requirements.

The number is deemed to be sufficient if the number of wheelchairs is equal to at least the half of the non self-sufficient patients staying in the ward. This choice is determined by the assumption that some totally non-cooperative patients or partially cooperative patients do not use wheelchairs.

Ergonomic requirements are assessed for every type of wheelchair-commode chair in the ward, taking into account the following aspects:

- arms, which should be completely removable
- backrest, which should not be excessively high
- braking control
- width, which should be less than 70 centimetres.

The value for the wheelchair factor may vary from 0.75 (ideal conditions) to 2 (critical conditions). This factor may vary from 0.75 to 2 because, based on EPM preliminary observations, the presence of non suitable wheelchairs-commode chairs or their insufficient number may double the frequency of patient handling tasks thus determining a biomechanical overload of the lumbar spine.



Famb is the environmental factor. The only structural characteristics considered are those that may increase the load on the lumbar area of the nursing staff employed in the patient handling in the following rooms: a) bathrooms used for personal care, b) toilets, c) hospital bedrooms.

In the rooms used for patient personal care (bathrooms with bathtubs or showers), items taken into account include the presence of a shower or bathtub, door width and orientation when opening the door, free areas and the presence of obstacles or other objects and low steps preventing the use of wheelchairs or other aids.

In the toilets, the following features are surveyed: the availability of free areas to use aids, if any, door width and



orientation when opening the door, side areas and toilet height as well as the presence of large handles on the walls.

In the hospital bedrooms, the characteristics of the relevant areas (area around bed, area covered by the bedside table, presence of obstacles or other objects reducing this area) as well as the characteristics of the beds (height, presence of wheels, characteristics of the edges, method of adjustment, area under bed to allow aids to get close) and of chairs used by non self-sufficient patients are taken into consideration.

For each room, the most critical and frequent 'non-suitability' features have been identified, since they determine a factor that is proportional to the higher load induced on the workers' spine while handling patients. Non-suitable environmental characteristics determine higher factors for nursing staff, because they have to perform a greater number of operations when handling patients. The presence of furniture that can hinder the partially cooperative patient from using residual motor abilities, thus forcing the nursing staff to perform lifting operations, may determine lower factors instead.

The environmental factor may vary from 0.75 (ideal conditions) to 1.5 (critical conditions). In fact, preliminary observations have shown that the complete lack of ergonomic requirements in healthcare facilities implies an increase by about 1.5 of operations causing bio-mechanical overload of the lumbar spine.

FF is the factor representing the workers' training. The training factor may vary from 0.75 (ideal conditions) to 2 (very critical conditions).

The type and level of completed staff training on the issues relating to the manual handling of loads and patients is thus evaluated. The development of specific and appropriate refresher courses and the distribution of information leaflets are taken into account when determining the quality of training.

The level of risk is raised as the MAPO index increases. Three classes have been determined that enable an immediate assessment of risk by using a 'traffic light' model.

Class of risk	MAPO index	Level of risk	Actions to be implemented
Green	From 0.00 to 1,50	Negligible	None
Yellow	From 1.51 to 5.00	Limited-Medium	Training, health surveillance and planning actions in the medium to long term to eliminate risk factors
Red	Greater than 5.00	High	Training, specific health surveillance and planning actions in the short term to eliminate risk factors

The application of the MAPO method for the analysis of hospital facilities accommodating partially self-sufficient or non-self sufficient patients is effective in achieving a specific indicator of risk that takes into account the complex interaction of environmental factors and the handling aids used. Furthermore it allows the identification and planning of correction measures to be adopted with the purpose of reducing risks and determining their prioritisation. This index can be used to assess the current situation, that is to calculate the actual level of exposure and to identify hospital wards at high risk, as well as to calculate the impact of each prevention action. In fact, by adjusting the factors that can be corrected, it is possible to calculate in advance the decrease in the exposure index, thus making well informed decisions on the costs required for each action and planning their prioritization.

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CASE STUDY

The Azienda USL (Local Health Unit) based in Forlì is subdivided into three main hospitals and many local offices throughout the surrounding territory. The unit employs 2,558 staff, many of whom are at risk of lower back pain. Hence it came up with a strategy to ease the burden on healthcare staff responsible for moving patients.

The first stage of the intervention strategy included:

- gathering information about the extent of the problem (awareness of lower back pain, sick leave due to backache and injuries due to lifting, supply of lifting equipment, training and education, etc.)
- consultation with workers' safety representatives
- meeting with the occupational physician and the health operator coordinator in relevant premises
- compilation and provision of a questionnaire on back problems
- risk assessment through MAPO method
- accidents survey
- evaluation of the level of information/education/training of health operators in single wards
- evaluation of major and minor aids available in the Local Health Unit, their suitability and actual use in the wards
- evaluation and observation of the available aids in use.

The information gathered during the first stage was used to develop the following interventions, implemented in the second stage:

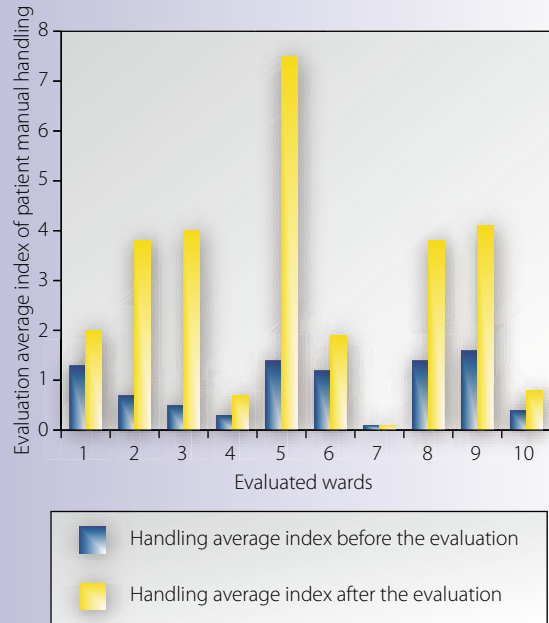
- information/education/training of the employees
- provision of major and minor aids depending on the type of patients in the ward concerned and the kind of activities and organisation

- establishment of the role of 'Facilitator' in the ward, to liaise with other operators and transmit the acquired knowledge.

The results were:

- a decrease in the risk associated with the work, and hence in accidents
- improvement of job motivation and satisfaction

Comparison MAPO indices – before and after training interventions and provision of new aids and training on their use



Adriano Papale, occupational physician, and Francesca Grosso, documentalist, are researchers in ISPESL's Department of Organisation Processes. They are involved in

the main activities of the Institute as focal point of the European Agency for Safety and Health at Work, including the organisation of European campaigns at national level.



ZUZANA JUSKOVÁ

Department of Product Safety and Quality, Faculty of Mechanical Engineering, TU Košice, Slovakia

Proposed assessment method for companies handling below-the-threshold quantities of hazardous substances



From a company's perspective, major industrial accidents are undesirable events, primarily due to the impact they have on people's lives, property, or the environment. For workplaces that handle substantial quantities of hazardous chemical substances, risk assessments and minimisation procedures are readily available. For smaller industrial installations that also store hazardous substances, the assessment of risk attributable to industrial accidents is not yet mandatory. These smaller installations could nevertheless pose a high risk of serious accidents, possibly owing to their location (for example, close to residential areas or places where many people gather, thus increasing the threat to the nearby population). Accidents in smaller workplaces could also lead to substantial environmental damage.

Introduction

Some industrial establishments are already aware of the need to implement a safety management system (e.g. in accordance with OHSAS 18001), as well as a quality management system (e.g. in accordance with STN EN ISO 9001:2000) and an environmental protection system (e.g. in accordance with ISO 14001). However, there is a need for assessment of smaller sources of hazards not covered by the Act on Prevention of Major Industrial Accidents.

Implementing a risk assessment procedure and adopting any appropriate steps could reduce the probability of accidents and their impact on people's lives, property and the environment. It could also help ensure that new industries posing a high risk are not placed in unsuitable areas, such as close to houses or protected natural habitats. It would be appropriate to integrate such a risk assessment into the planning stage of every new industrial plant, as well as into the operational routine once it has been built. It should also be a compulsory part of any investigations following major accidents. Risk assessment would improve awareness about the sources of hazard, the consequences of possible accidents, and the danger to threatened target groups. Current trends in assessment of below-the-threshold sources of hazards were behind the adoption of Decree No. 533/2006 Coll. on Details of Civil Protection against Effects of Hazardous Substances. This Decree clearly defines the parameters to be used when calculating leakages of hazardous chemical substances.

1. An explanation of basic terms

Below-the-threshold sources are sources that, according to Act No. 261/2002 Coll., as amended in more recent legislation on the prevention of major industrial accidents (hereinafter 'the Act'), are not ranked in class A or class B but, due to their primary and secondary effects, give rise to consequences comparable to those of major industrial accidents.

Below-the-threshold sources of hazard are ranked:

- 1) by their properties, and
- 2) by the quantity of hazardous substances present.

Table 1 Examples of typical unranked sources of hazard

Hazardous substance	Examples of installations	Threshold quantity (Act No. 261/2002 Coll.)	Actual amounts in below-the-threshold operations	Note
Ammonia	Breweries, dairies, cold storage installations, meat-processing installations, ice-rings	50 tonnes (A)	2-7 tonnes	Ammonia in cooling installations
Chlorine	Water treatment plants, swimming pools, indoor pools	10 tonnes (A)	300-500 kg	Chlorine in 500 kg barrels or 45 kg bottles
Acetylene	Stores of pressure gas bottles	5 tonnes (A)	up to 100 kg (a battery of acetylene pressure bottles)	Most often 50l bottles containing 8 kg of C ₂ H ₂



In particular, these include toxic, inflammable or explosive substances.¹ Typical non-ranked sources of hazard include installations containing up to 50 tonnes of ammonia, 10 tonnes of chlorine, or 50 tonnes of LPG. Table 1 presents examples of frequent below-the-threshold sources of hazard.

The Selected Hazardous Substance is a chemical substance or chemical preparation featuring one or more hazardous properties, as defined in specific legislation.²

The Domino Effect is a continuing event where consequences become greater with each subsequent accident following the first one, with the event as a whole leading to consequences similar to those of a major industrial accident.

Efforts have been made in recent years to identify those installations where safety documentwviation concerning prevention of major accidents should be made mandatory, on the basis of the thresholds of hazardous substances as specified in the Act. This relatively simple procedure is based on a summing formula, presented in part 2, and has its pros and cons. On the one hand it is an unambiguous way of ranking an establishment into either group A or group B. On the other hand, however, it fails to say anything about the actual risk to a neighbourhood.³

The Act stipulates obligations (see Table 2) for the A-class and B-class-ranked establishments, and also for below-the-threshold establishments, subject only to a mandatory ranking procedure.⁴ It would be advisable to impose certain obligations that apply to ranked establishments on those establishments with below-the-threshold sources as well. This would serve to minimise the likelihood of accidents and their implications.

Table 2 Comparison of obligations applicable to below-the-threshold establishments and to establishments ranked by virtue of the Act

Obligations stipulated in the Act	Non-ranked establishment	B-class	A-class
Ranking	yes	yes	yes
Major industrial accident prevention plan	no	yes	yes
Safety control system	no	no	yes
Risks	no	yes	yes
Emergency plan	no	yes	yes
Safety report	no	no	yes

Recent events in the Slovak Republic have demonstrated the importance of this issue. Hydrogen sulphide⁵ leaking from an in-process storage tank in a warehouse in Bratislava should not have posed any threat to the neighbouring population, yet it ultimately

cost two lives. Another example⁶ was the storage of hazardous toxic waste that caught fire in Bratislava, causing two firemen to be admitted to hospital for observation.

In some cases a source of hazard with below-the-threshold quantities of hazardous substances located, for example, in a densely populated area, might pose an even larger threat than a larger source with above-the-threshold quantity that is not situated in a residential area.⁷ The need for assessment of establishments with below-the-threshold quantities of hazardous substances also follows from the fact that major industrial accidents can also occur in non-ranked sources of hazard. At present there is no risk assessment methodology available for below-the-threshold sources of hazard.

2. Possible model scenarios for accidents in below-the-threshold sources of hazard

One feature of below-the-threshold sources of hazard may be the presence of inflammable, explosive, toxic and other hazardous substances. As with major industrial accidents, accidents in unranked sources of hazard may follow one of eight possible model scenarios:

1. BLEVE⁸
2. Pool Fire
3. Jet Fire
4. Flash Fire
5. Boil over
6. VCE
7. UVCE⁹
8. Toxic dispersion

Each of these scenarios has specific manifestation and properties. Table 3 gives a brief description of the various scenarios and their typical manifestations.



¹ Bartlová, I., *Nebezpečné látky I.*, Ostrava, 2005, ISBN: 80-86634-59-3.

² Zákon č. 261/2002 Z. z. o prevencii závažných priemyselných havárií a o zmene a doplnení niektorých zákonov.

³ Bernatík, A. (2004), *BOZP, prevence závažných havárií a ochrana životního prostředí*, Konference Bezpečnost a ochrana zdraví při práci 2004, Ostrava, ISBN: 80-86634-36-1, pp.1-10.

⁴ Zákon č. 261/2002 Z. z. o prevencii závažných priemyselných havárií a o zmene a doplnení niektorých zákonov.

⁵ www.hazu.sk

⁶ spravypravda.sk

⁷ Bernatík, A. (2004), *Možnosti hodnocení rizik v podnicích nezařazených pod účinnost zákona o prevenci závažných havárií*, 13. konference APROCHEM 2004, Milovy 20.-22.9, 584pp.

⁸ BLEVE stands for 'boiling liquid expanding vapour explosion'.

⁹ VCE stands for 'vapour cloud explosion' and UVCE for 'uncontrolled vapour cloud explosion'.

**Table 3 Model scenarios typical for below-the-threshold operations¹⁰**

Type of consequence	Description	Manifestation	Note
BLEVE	Leakage of overheated vapour with subsequent ignition and burning of the fireball; the burn-up takes several seconds	Thermal flow density of the fireball [kWm ⁻²]	Time to fireball creation is dependent on parameters of the storage facility, heating temperature of storage facility, and heated area
Pool Fire	Burning of inflammable liquid in an unlimited pool; the burn-up lasts for minutes, until the fuel burns down	Thermal flow density [kWm ⁻²]	Precondition is availability of inflammable liquid, ignition source, and oxidising agent
Jet Fire	Leakage of pressurised inflammable gases or liquids with immediate ignition of escaping flow	Thermal flow density [kWm ⁻²], but only within the field of the jet flame and in close proximity to it	Precondition is appropriate pressure conditions for initiation of this event
Flash Fire	Burn-up of inflammable vapour above a liquid. Propagation is relatively slow	Thermal flow density [kWm ⁻²]	Characterised by slow propagation of the flame, with no increase in the pressure around the flame
Boil over	Boil-over from a storage tank, possibly spreading over larger areas	Thermal flow density [kWm ⁻²]	Characteristics for mineral-oil based volatile substances, the boil-over time, boil-over to surrounding areas
VCE	Explosion of a confined gas and vapour cloud	Pressure change Δp in time	Fast pressure change in time
UVCE	Explosion of an unconfined gas and vapour cloud	Pressure change Δp in time	Fast pressure change in time
Toxic dispersion	Leakage of liquid, gaseous phase from the source, subsequent dispersion into surrounding areas depending on the conditions	Concentration of a toxic substance at a relevant distance. Concentration in ppm or mgm ⁻³	Dispersion and evaporation of the substance is dependent on physical and chemical ambient conditions

3. Proposed procedure for assessing the risks in below-the-threshold quantities of hazardous substances

The methodology is intended to assess the risks in installations where the threat to the nearby population and environment arises from the presence of hazardous substances in below-the-threshold quantities. In assessing establishments with below-the-threshold quantities of hazardous substances the procedures should follow the scheme presented in the diagram below.

Assessment should start with the gathering of basic data about the establishment and the neighbourhood in which it is situated:

- The layout/map of the establishment
- List of hazardous chemical substances
- The location of hazardous chemical substances
- Safety Data Sheet (SDS) for each particular chemical substance
- Data on fauna, flora, water, soil, and air on the establishment's premises.

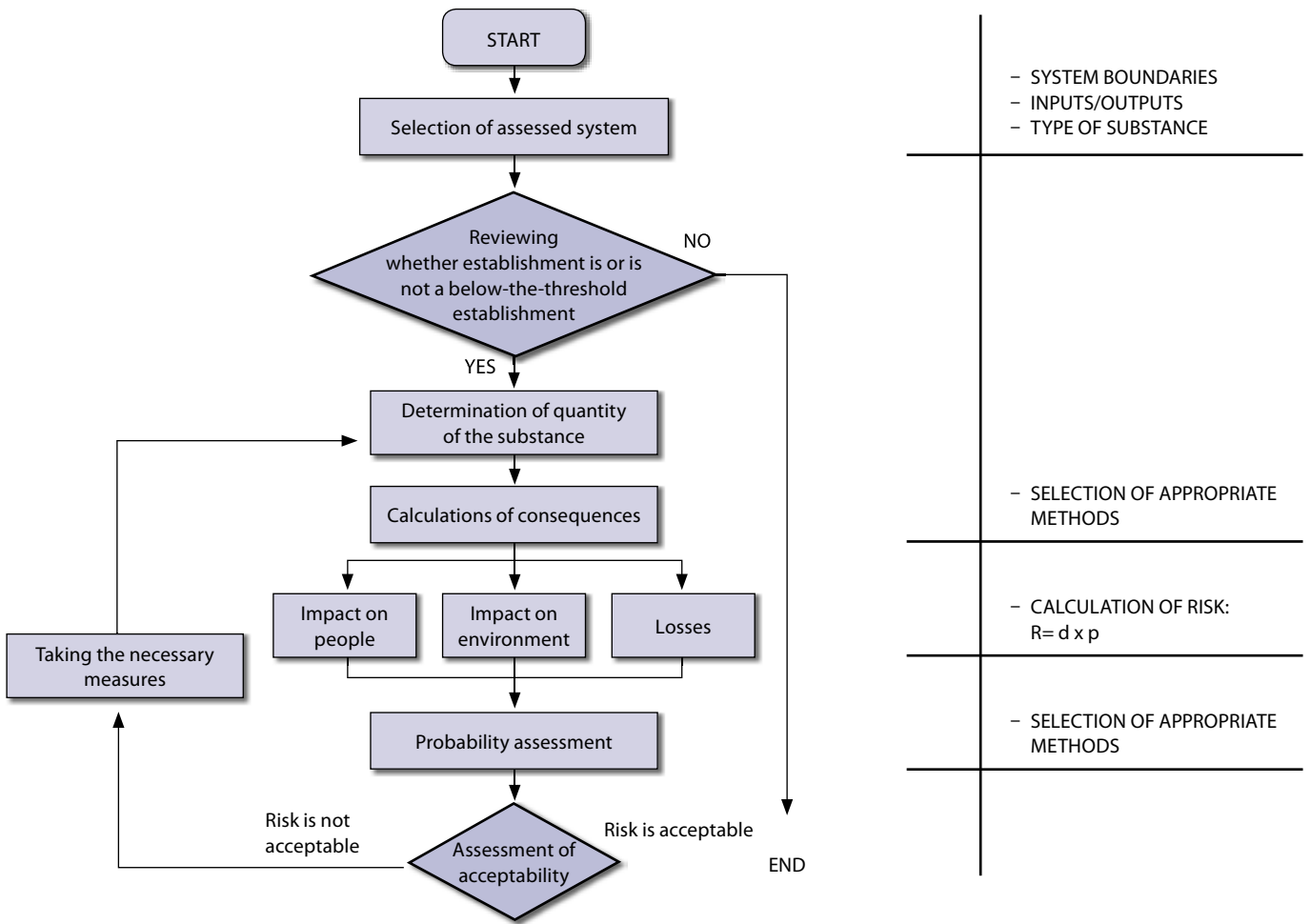
The assessor's next step should be to judge whether the establishment concerned falls within the below-the-threshold category, i.e. whether or not it falls within the scope of the Act. The comparison with the thresholds stipulated in the Act should be carried out in accordance with Annex 1, where the threshold quantities are specified in Table 1.

- For assessment purposes, the establishment needs to be divided into separate installations containing hazardous substances.
- The next step is to determine the probabilities and consequences. A variety of methods are available. Selection should be guided by the substance concerned and by the specific conditions.
- Finally, the acceptability of the risk should be determined. If the risk is not acceptable, necessary measures should be taken and the whole procedure repeated until an acceptable level of risk is established.

¹⁰ Oravec, M., Jusková, Z., Holotová, K. (2006), Odborná prednáška o zákone č.261/2002 Z.z. o prevencii závažných priemyselných havárií, Košice.



Procedures for companies handling below the threshold quantities of hazardous substances



Conclusion

The Act does not mention establishments storing below-the-threshold quantities of hazardous substances. The risk posed by such unranked sources needs to be managed, even if, in terms of accident prevention, they are taken care of by legislation. These unranked sources can pose a substantial risk of major accidents. There is a need to focus attention on the importance of risk assessment at below-the-threshold sources. The key conditions for prevention of accidents include risk perception and proposals for a viable and appropriate risk assessment procedure for such sources. It is recommended that the notion of *below-the-threshold source*, as defined in section 1 of this paper, be introduced in the legislation of the Slovak Republic. A comprehensive resolution of the issue of major industrial accident risk assessment requires an integrated approach based on an understanding of technical, natural, and social science aspects.

The paper was prepared as part of the project VEGA 1/2220/05 'Research into risk assessment methods regarding major industrial accidents and application thereof in risk assessment in industry'.



Zuzana Jusková is a postgraduate student working at the Technical University of Kosice's Department of Safety and Quality production. She is engaged in technical projects with her main focus being major accident hazards, explosion prevention in industry and pipeline integrity

management. Her department also cooperates with Slovakia's national labour Inspectorate and has organised an international conference on 'New Trends In Safety And Health'.



DANIELA MARINO, THOMAS LANGHOFF

prospektiv GmbH, Dortmund, Germany

Stress – Psychology – Health: the START process for assessing the risk posed by work-related stress



The 'Start process'¹ is an instrument for classifying and assessing psychological stress in the workplace.

The 'Start process' falls in the area of preventive health measures. The process enables workplace practitioners to evaluate psychological stress and, by deriving corresponding measures, to reduce or even do away with sources of stress. A reduction of the stress risk in the workplace not only improves the health of employees; it also enables their potential to be better utilised and work processes to be carried out more effectively. This is more likely to be achieved if employees participate in the evaluation of the stress situation and if the evaluation is carried out – as envisaged by the 'Start process' – on the basis of information given by the employees.

The 'Start process' follows recommendations made by the *Bundesanstalt für Arbeitsschutz und Arbeitsmedizin* (Federal Institute for Occupational Safety and Health), as well as the rules laid down by official trade associations and labour inspectorates; in case of more complex situations, the process can include other measures, e.g. consultation with experts or the use of procedures for detailed analysis of psychological stress.

Objective/benefits

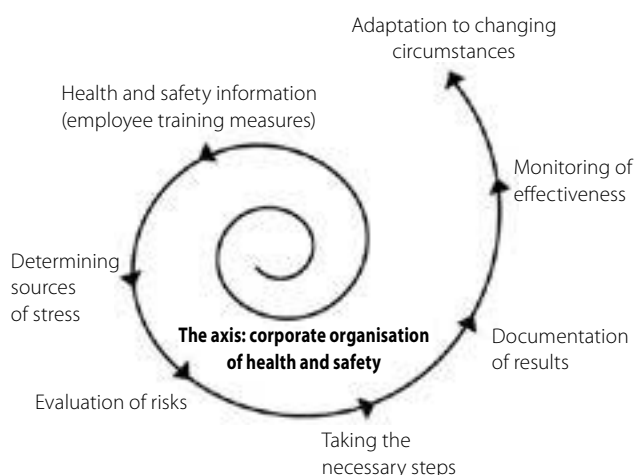
The Start process is intended to enable all players in the workplace (employees, members of the works council and occupational health practitioners) to assess psychological stress in the workplace objectively (in accordance with the requirements laid down by the German Occupational Health and Safety Act) as part of an overall analysis that will pave the way for further investigation.

This risk assessment aims to improve the stress levels and health of the employees in order to improve efficiency and smoother running of the company concerned.

The process adopts a preventive approach, i.e. it aims to ensure that the work is set up in such a way that potential risks to health do not arise (see Figure 1).

¹ PRO:AGTIV – Betriebliche Prozesse zur Gestaltung von Arbeit, Kompetenz, Gesundheit and Technologie innovativ verbessern; reference: 99-V52A-2759 – research project funded by the EU and the Region of North-Rhine Westphalia.

Figure 1 The prevention spiral in occupational health and safety



Source: Sätzer, Rolf (co-authored with Geray, Max): *Stress – Psyche – Gesundheit, Das START-Verfahren zur Gefährdungsbeurteilung von Arbeitsbelastungen*, Bund Verlag – Frankfurt 2006

As the prelude to an ongoing programme of improvement, the START system allows users to derive practical measures aimed at tackling the specific situation in their workplace which can then be documented in a company collection of sample scenarios.

Nature/type of instrument

START comprises a handbook including:

- A START questionnaire with open and closed questions (to assess psychological stress in the workplace from the subjective viewpoint of employees)
- Checklists (to enable an on-site evaluation of psychological stress). These checklists combine with inspections, workplace observations and interviews with employees in the workplace.

Structure and methodology

The START handbook is structured as follows:

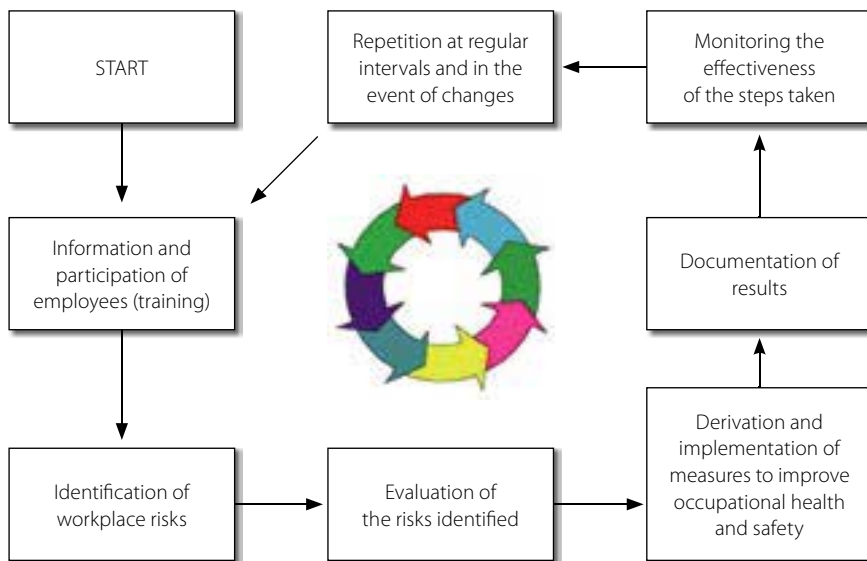
- Chapter 1 provides an overview of the process.
- Chapter 2 goes into more detail about how measures to deal with psychological stress can be derived, giving a practical example.
- Chapter 3 gives further information for practitioners on the process itself and how to evaluate risk.



- Chapter 4 gives a list of 30 companies that have already carried out a risk assessment of psychological stress or have done the relevant preliminary work leading up to this.
- Chapters 5 and 6 provide guidelines on the inclusion and participation of employees in training measures relating to psychological stress as well as an explanation of the current legal situation, the role of co-determination and company agreements.
- The Appendix contains selected company agreements relating to the risk assessment of psychological stress, as well as a sample draft agreement.

- The works council must be informed about the process, and trained to a sufficient level to carry it out
- The workers must be thoroughly briefed about the process so that they can participate fully
- Clarification of the methodology with employers
- An in-house assessment team must be formed to carry out the risk assessment
- Creation/identification of necessary organisational measures
- In-house occupational health and safety bodies must be suitably qualified
- It must be determined whether external consultants will be needed to carry out the assessment.

Figure 2 Risk assessment sequence in the START process



Source: Satzer, Rolf (co-authored with Geray, Max): Stress – Psyche – Gesundheit, Das START-Verfahren zur Gefährdungsbeurteilung von Arbeitsbelastungen, Bund Verlag – Frankfurt 2006

Requisite resources/expenditure

Completing the questionnaire takes about 10 to 15 minutes; it is important to ensure that employees are not rushed when doing so. This means that the time needed can vary from person to person.

Thanks to the simple and practical design of the form, the questionnaire can be evaluated by in-house staff using the appropriate PC software.

Guidelines on participation

Who can participate?

The START process allows employees and works council members to be involved, as required by modern occupational health and safety practices.

How do workers participate?

Employees provide preliminary information and participate throughout the entire risk assessment process. This includes the following steps:

- Training in preparation for risk assessment
- Filling in the questionnaire. Employees can also raise topics of importance to them outside the scope of the questions themselves
- Inclusion of employees in the assessment team to clarify specific questions
- Derivation and implementation of measures.

It is critical that the works council is involved at all stages of the risk assessment so that it can advise on the identification, evaluation and derivation of suitable measures.

What is the degree of participation?

Because the works council identifies, evaluates and derives suitable measures for implementation, it can be said that the degree of participation is high, as the process enables the works council to make a genuine contribution to the employer's central decision-making bodies.

The degree of participation on the part of employees can also be rated as high, because when completing the questionnaire,

Methodology

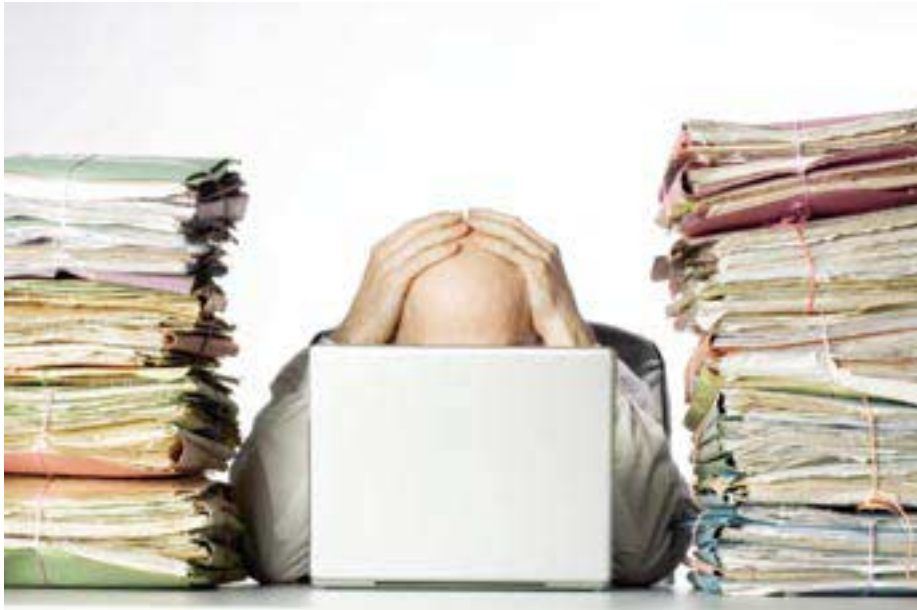
The handbook explains the cyclical sequence of risk assessment as part of the START process, forming a basis on which to model a modern occupational health and safety strategy according to the following steps:

- Start
- Information and participation of employees (training measures)
- Identification of workplace risks (using START questionnaires and checklists for on-site analysis)
- Evaluation of the risks identified
- Derivation and implementation of measures to improve occupational health and safety
- Documentation of results
- Monitoring of effectiveness of the measures taken
- Repetition at regular intervals and if there are any changes.

Putting the process into practice

The employer is responsible for carrying out a risk assessment. The START process can be carried out by lay-persons with basic qualifications.

Before the START process can begin, however, the following prerequisites must be in place:



In small or very small companies, personal interviews and the use of simple checklists can be used at little expense.

Information on deriving measures to combat psychological stress can be found in the following standards and guidelines, which members of the assessment team should consult as necessary:

- DIN ISO Norm 10075 – Parts 1 and 2
- ISO Norm 9241 – 2
- *Advice on identify risk-related occupational health and safety measures* (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin 2004)
- *Psychological stress and challenges at work / recognise – organise* (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin 2002)
- *Stress at work? Practical guidelines* (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin 2004)
- Advice on how the occupational health and safety departments of the German

Länder can identify and assess psychological stress at work and options for prevention (Länderausschuss für Arbeitsschutz und Arbeitssicherheit – LASI 2003)

- *Psychological stress in the world of work* (published by: Großhandels- und Lagerei-Berufsgenossenschaft 2002)²

employees can provide additional information on each question, thus ensuring that from the viewpoint of employees, they can make important observations in the questionnaires. Employees also have the opportunity to raise topics of importance to them beyond the scope of the questions themselves. In addition, employees complete the questionnaires at their workplace, they are consulted by the assessment teams on important questions and are involved in deriving measures for implementation.

What are the instruments of participation?

The instruments of participation are: the assessment team for the organisational planning, control and implementation of the risk assessment; evaluation of the questionnaire results and derivation of measures for implementation; the questionnaire survey using START questionnaires; supplementary evaluation by means of inspection rounds, workplace observations, checklists as well as interviews with employees on the topic of risk assessment; the various measures relating to psychological stress (e.g. training for employees and managers).

Goal of participation

The goal of employee participation is to adequately evaluate stress on the basis of information provided by employees.

As well as promoting health, participation is also intended to promote acceptance of the preventive measures taken by employees.

Combinability

If at any time during the process of risk assessment, evaluation or derivation of measures, serious problems arise, the START process can be supplemented by more in-depth procedures. This is recommended for complex cases in particular. In such situations the results obtained can be analysed in greater depth by involving external professionals or applying detailed analysis procedures.

Processing the results

In the START strategy, the various workplace components are evaluated from larger to smaller. First the overall workplace is taken into consideration, then the immediate area of the work activity then the activity itself. Thus the results obtained can be traced back to individual activities. This means that conclusions can be drawn about potential employee stress. These conclusions can then be used to derive measures to reduce or even eliminate stress at the individual workplace.

Observations

The START process – which was developed largely by workplace practitioners – in essence brings together the experience of occupational health and safety bodies, works councils and workers.

The handbook documents the results of one of the occupational health and safety campaigns conducted by IG Metall Baden-Württemberg, in which works council members in over 200

² These guidelines were published in German with the following titles: Ratgeber zur Ermittlung gefährdungsbezogener Arbeitsschutzmaßnahmen im Betrieb (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin 2004); Psychische Belastungen und Beanspruchungen im Berufsleben/Erkennen – Gestalten (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin 2002); Stress im Betrieb? Handlungshilfen für die Praxis (Bundesanstalt für Arbeitsschutz und Arbeitsmedizin 2004); Handlungsanleitung für die Arbeitsschutzverwaltungen der Länder zur Ermittlung psychischer Fehlbelastungen am Arbeitsplatz und zu Möglichkeiten der Prävention (Länderausschuss für Arbeitsschutz und Arbeitssicherheit – LASI 2003); Psychische Belastungen in der Arbeitswelt (Hrsg. Großhandels- und Lagerei-Berufsgenossenschaft 2002).



companies took part in information seminars on psychological stress and risk assessment.

The process has been successfully implemented by numerous companies.

The process expressly focuses on the statutory framework and prevailing norms. As such, it follows the recommendations given by the *Bundesanstalt für Arbeitsschutz und Arbeitsmedizin* as well as the rules laid down by the official trade associations and labour inspectorates.

The process is open to change, i.e. it can be tailored to meet the requirements of different workplaces.

The process implies a preventative approach (it does not deal exclusively with eliminating shortcomings, as is the case with traditional occupational health and safety measures).

The inclusion of open questions allows employees to make more detailed comments that go beyond the scope of the questions themselves; this in itself can raise additional important points on risk assessment.

Source

Satzer, Rolf (co-authored with Geray, Max): *Stress – Psychology – Health, the START process for evaluating workplace stress*, Bund Verlag – Frankfurt 2006.³



Thomas Langhoff has been managing director of prospektiv GmbH since 1999. He has many years' experience in research, consultancy and training, and currently focuses on the management of change, demographic change, organisational development, corporate strategy and occupational health and safety. He is a member of the society of labour science and the association of German psychologists, and a lecturer in ergonomics at the University of Hannover.



Daniela Marino has worked as a psychologist and research assistant at prospektiv GmbH since 2006. Her current main focus is the field of risk assessment for work-related stress.

³ German source: Handbuch: Satzer, Rolf (unter Mitarbeit von Geray, Max): *Stress - Psyche - Gesundheit, Das START-Verfahren zur Gefährdungsbeurteilung von Arbeitsbelastungen*, Bund Verlag - Frankfurt 2006.



PETER RIMMER

Project Manager, the Napo Consortium, Europe

Napo in: Risky Business

The Napo series of animated films is produced in computer graphics featuring characters from the world of work. The main character, Napo, and his partners express themselves in wordless language. Their stories have an educational value. They provoke questions and stimulate debate; sometimes they come up with practical solutions to problems, all in the name of creating healthier workplaces.

Napo in: Risky Business!

A new Napo film was released in spring 2008 to support the Healthy Workplaces campaign and its focus on risk assessment. The objective of the latest Napo production was not simply to repeat what is already covered in existing films, most of which are technically excellent and produced to high standards, but to provide a new entrée to the topic. It was an opportunity to 'think outside of the box' and to be imaginative – always easier said than done – and to capitalise on humour and the Napo way of doing things!

The film looks at hazards and risk, and the financial benefits of effective risk assessment. It demonstrates a basic risk assessment, how to eliminate risk and take action to prevent or reduce risks by taking responsibility, and asks the question: 'Who is at risk?'

Napo in: Risky Business! shows some of the consequences of getting it wrong and makes links with work organisation. The global message is that hazards can be identified and risks managed so that workplaces are safer, healthier and more productive for workers and employers.

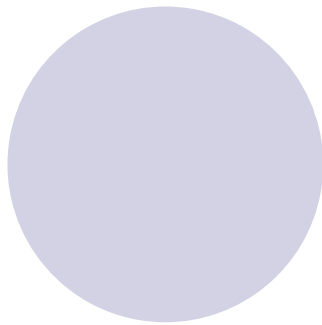
The film maintains the basic simplicity of Napo – plain backgrounds, and few distractions from the main point of each scenario.



Peter Rimmer is a freelance writer, editor and communications consultant who worked for 16 years as Director of Information with the UK Health and Safety Executive (HSE) until the end of 2003. He writes for Safety & Health Practitioner magazine and is Editor of Health Protection Matters, a magazine published by the UK Health Protection Agency (HPA).







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