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# How to create economic incentives in occupational safety and health: A practical guide

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# Foreword

EU-OSHA is proud to present this Guide on Economic Incentive Schemes to promote Occupational Safety and Health (OSH). Our research suggests that economic incentive schemes encouraging companies to invest in risk prevention are a cost-effective option for governments looking to cut the numbers of work-related accidents and illnesses. The guide is based on the findings of our European economic incentives project to draw up a practical and user-friendly guide to help incentive providers in the EU create or optimise their own economic incentive schemes.

A special feature of this guide is that it was produced by the potential users themselves, namely the members of the EU-OSHA economic incentives expert group, in order to ensure the highest possible relevance for this target group. This expert group is quite extraordinary in terms of continuity and active (voluntary) participation, which has grown over the years. It was established in 2007 to give advice and input to the Agency products related to economic incentives, and to help to promote the results among stakeholders. The aim is to stimulate discussions in the EU Member States about economic incentives in OSH, which are regarded as an effective tool to reduce accidents and improve working conditions.

So far, our economic incentives project has already encouraged different EU Member States to learn from each other, and to exchange good practice in designing incentive schemes. All in all, the project shows that economic incentives can be effective in all Member States, despite the wide differences in their social security and accident insurance systems.

The project and its results have been presented at conferences and workshops in numerous European countries, including Bulgaria, Cyprus, the Czech Republic, Germany, Italy, Sweden, Slovenia and the UK. Some practical consequences have already been observed. For example, the Italian workers' compensation authority INAIL has developed a new incentive scheme which takes into account the experiences and good practice of other countries and is therefore based on the best available international knowledge. With a budget of over €60 million, the INAIL scheme is targeting small and medium-sized enterprises in particular. Experts estimate that it could lead to benefits worth €180 million at society level.

I would like to take this opportunity to thank our economic incentives expert group and all European partners as well as Agency and Topic Centre Working Environment staff who have contributed to the compilation of this guide.

Christa Sedlatschek
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# Introduction

European countries could benefit from introducing more economic incentives to promote workplace health and safety, rewarding those organisations that work hardest to protect their employees. That is the message of the economic incentive project, undertaken by the European Agency for Safety and Health at Work (EU-OSHA).

Some EU Member States already offer various kinds of financial rewards for businesses that invest in keeping their employees safe. These rewards range from state subsidies and grants, through to tax breaks, preferential terms for bank loans, and lower insurance premiums for the best-performing businesses.

The European Community strategy 2007–12 on occupational safety and health (OSH) recognises that there is a need to use economic incentives to motivate enterprises to apply good practice in their prevention work. EU-OSHA contributes to meeting this need by providing information on the types of economic incentives that are most likely to succeed. Research has shown that external economic incentives can motivate further investments in prevention in all organisations and thus lead to lower accident rates. For example:

- An incentive scheme introduced in the German butchery sector in 2002 led to a 28% fall in reportable accidents over the following six years compared to a 16% fall in the sector as a whole. In total numbers this means there were about 1,000 fewer accidents per year in incentivised companies.
- After the Italian Workers' Compensation Authority began to subsidise bank credits in order to stimulate investment in health and safety among small businesses, the companies taking part in the scheme reported a reduction in workplace accidents of between 13 and 25%.
- An incentive scheme in the Finnish agricultural sector has slashed the accident rate by 10.2%, preventing over 5,000 accidents so far.

This project gives the clearest indication yet that these types of incentives are effective, encouraging organisations to improve their occupational health and safety. According to Elsler et al. 2010, for every euro spent through incentive schemes, up to €4.81 is saved through reduced accident and disease rates, and lower rates of absenteeism as working conditions improve.

Besides this business case for the incentive-providing organisations, there are further arguments to introduce an economic incentive scheme, especially for private or state-run insurance companies:

- improvement of corporate social responsibility (especially in large companies)
- improved reputation of the insurance company
- creating win–win situations with clients
- competitive advantage (for private insurance companies).

The project was inspired by the European OSH Strategy 2007–2012, which aimed to reduce occupational accidents by 25%. In its first phase several products were delivered:

- A dedicated web portal on economic incentives in OSH in 22 languages: http://osha.europa.eu/en/topics/economic-incentives
- a comprehensive report titled 'Economic incentives to improve occupational safety and health: A review from the European perspective' (EU-OSHA, 2010)
- a fact sheet (summarising the report in 22 languages)
- two articles in a peer-reviewed scientific journal (Scandinavian Journal for Work, Environment & Health, Elsler & Eeckelaert (2010), Elsler, Treutlein, Rydlewska et al (2010)).
- a series of expert group workshops, documented in our events section
- a collection of case studies to in our good practice data base

The second phase of the project is now delivering more practical products for organisations that are interested in developing or optimising their own incentive scheme:

- a practical guide for incentive-giving organisations
- sectoral compilation of innovative OSH solutions that can be incentivised.

This document is based on the findings of our economic incentives project and is intended to serve as a practical and user-friendly guide to help incentive providers in the EU create or optimise their own economic incentive schemes. The primary target audience is organisations that can provide economic incentives to improve OSH, such as insurance companies, social partners or governmental institutions. These organisations are regarded as important intermediaries to stimulate further efforts in OSH in their cooperating enterprises; for example as clients of insurance institutions.

One conclusion from the EU-OSHA economic incentives project is that incentives schemes should not only reward past results of good OSH management (such as accident numbers in experience rating), but should also reward specific prevention efforts that aim to reduce future accidents and ill-health (EU-OSHA, 2010). Experts from the economic incentives project therefore suggested the development of compilations of innovative and evidence-based preventive solutions, starting with the three sectors construction, health care and HORECA (hotels, restaurants, catering). The preventive measures from these compilations are worth promoting in their own right, as well as being applied in economic incentives schemes. These preventive solutions can be used as a basis for incentive-providing organisations to develop their own incentive scheme, adapted to the specific situation in their sector and country.

# 1. Analysis of social frameworks and financial conditions

**What are economic incentives?**

Economic incentives in occupational safety and health (OSH) refer to ways of rewarding organisations for having safe and healthy workplaces. Using economic incentives is a useful way to get organisations to invest in OSH and go beyond minimum legal requirements. Economic incentives can complement law enforcement as they bring financial benefits and thus add weight to the business case for good OSH in a way that is clear to company managers across all Member States.

Economic incentives are financial advantages granted to companies or organisations that improve their working conditions. They include:

**State subsidies, grants, financing**

Companies that improve working conditions could be given financial payments or favourable access to finance conditions (bank loans). For example, a government might sponsor companies to invest in safe machinery or safer work organisation.

**Incentives based on tax systems or tax structures**

Taxes can be tailored to encourage businesses to act a certain way. For instance, tax breaks could be offered to employers who invest in equipment that is safer than specified in the minimum legal requirements.

**Insurance premium variation**

The insurance premium paid by a company could be linked to its safety and health performance. Companies with low accident and disease rates, or good safety practices and management, could pay lower premiums.

**Parameters of insurance schemes**

This section is meant to supply a guideline to identify which parameters have to be taken into account and are suitable to create effective incentive schemes in a given social framework. The safety and health consequences and the ensuing costs with respect to medical treatment, wage losses and disability costs are distributed in various ways across the EU Member States. An incentive scheme should not be designed with the sole purpose of having the strongest possible incentives – the incentive element must be balanced to take into account the workers' legal rights and trouble-free access to health and social services.

The main sociological parameters for a proper scheme are:

- The existence and nature of an occupational risk insurance scheme. The existence of a separate occupational risk insurance scheme is a key parameter for further improvement. Existing schemes need to be taken into account as it is not easy to change under the current circumstances.
- The structure and power of social partners. The power of social partners varies between different countries depending on history and tradition. This power is measured in terms of their involvement in the administration of the system (do they operate institutions? do they define wages through official collective bargaining?). Their structure may be centralised or sectoral. Depending on their structure collective bargaining takes part centrally or locally or by sector, in which case power is greatest at sectoral level. A decentralised structure usually exists in large economies.
- The structure of the state institutions. The type of institutions involved (labour inspectorate, health administration, regulatory bodies, research/training institutions, etc.) also affects the appropriateness of an incentive scheme.

The incentives in proposed insurance schemes must also be compared to the potential incentives in the general sick pay schemes, regulated either nationally or by collective agreements. If employers are obliged to pay a large percentage of normal wages directly in the case of general sick leave (for example up to two years in the Netherlands), then this creates a fairly strong incentive to reduce the sickness and accident rate.

**Financial and sectoral parameters**

The social structure is regarded as the main parameter influencing the development and maintenance of an incentive scheme.

Parameters to be analysed are the following:

- Number and type of accidents in total. A major goal of an incentive scheme is to reduce occupational accidents (and diseases); hence the reduction of the number of accidents must be a criterion for the application of economic incentives.
- Number and type of occupational diseases. Although occupational diseases are a large part of occupational risk (and its cost) it is much more difficult to use them as a proxy for incentive schemes. Unlike occupational accidents, diseases have a long latency (and exposure) period and it is not always easy to prove whether each incident can be attributed to occupational risks. It must be mentioned that several countries (such as Belgium, Spain, Portugal and Denmark) have developed separate insurance schemes for occupational diseases.
- Severity of occupational diseases and pensions paid. Economic incentive schemes are often integrated into the occupational risk insurance scheme; in other words, they are used for balancing the necessary fees for the operation of an insurance scheme. Therefore, the cost of compensation (the cost of absence/medical treatment/rehabilitation) or pensions should be shifted to the enterprises that usually cause more costly diseases. Therefore, it is not only the incidence, but also the severity of occupational accidents and diseases that needs to be taken into account. The possibility of death, permanent disability or the number of days out of work are usually used as proxies.

- Sickness rates. Sickness rates as recorded by employers and health insurance institutions are a major economic factor. However, the rates can vary due to different methods of calculation. Reporting of sickness is an issue of major concern. The issues of deliberate over-reporting or under-reporting of sick leave need to be addressed. The occupational sickness rate should be analysed and compared to the overall sickness rate for each country (for example, whether lung cancer in the country concerned is above average due to cultural factors, such as higher cigarette smoking rates). Moreover, if sickness rates are different for certain sectors, this must also be taken into account to balance the problem of occupational disease attribution due to long latency periods.
- Job satisfaction. Job satisfaction is also connected to OSH in the wider context of working conditions, especially with reference to less recorded OSH issues, such as harassment, stress, burnout, bullying, mobbing, etc. Therefore, sectors (or enterprises) of lower job satisfaction can be charged in order to provide incentives to improve their working conditions.
- Expenditure by enterprise and sector. Potential investments in health and safety should be part of incentive schemes. Usually investment in certain prevention measures is funded by insurance institutions. It is difficult to assess the sum of investment on occupational health and safety per enterprise, unless this investment is a part of a central initiative. This assessment requires performance rating (in other words, audits), which can involve greater effort and expenditure for the insurance institution. Despite these difficulties, expenditure is an important parameter, as it is a proxy of prevention (as opposed to accident records).
- Awareness level of an enterprise and education of decision makers in health and safety issues. The level of involvement of decision makers (directors, plant supervisors, etc.) and their willingness and awareness to encourage the adoption of health and safety practices and legislation within the daily operation of the company is crucial for the improvement of health and safety at the workplace. The awareness level is difficult to quantify, but it can be estimated by using qualitative indicators such as health and safety training held, processes and quality audits applied in the company, and the results of questionnaires to define the expertise of decision makers in OSH issues.
- Sectoral developments. Due to outsourcing, restructuring and outplacement, occupational risks may be transferred from sector to sector and/or from bigger companies to smaller ones that usually are less able to comply with legislation and good practice or directives relating to health and safety. An incentive scheme should not underestimate this trend, taking the pressure off sectors or companies which tend to subcontract responsibilities to lower-budget or less capable associates. A sectoral balancing factor, depending on the sectoral extent of outsourcing, can be charged in order to transfer fees down the same route as outsourced operations. In schemes with independent sectoral insurance institutions, a central authority could administer this balancing mechanism.

# 2. Developing a strategy for an incentive scheme

The process is structured into seven steps, based on Zink et al. 2009 (Figure 1).

**Figure 1: Strategy development process for incentive scheme**


The strategy process shown in Figure 1 refers to the development of an incentive scheme from the point of view of the incentive provider. The process may be used to design incentive schemes that focus on organisations, as well as incentive schemes for individuals. It is meant to initiate a continuous improvement process; in other words, the strategic review in stage VI should re-start the process on a higher level based on the experience gained so far. Depending on the process review, certain steps may be skipped.

### Step 0: Organisational vision and mission statements

There are many interdependent influences on health and work safety that organisations have to deal with. So before starting with the development and implementation of an incentive scheme it is important to think about the basic understanding of health, which should be promoted by the incentive scheme. For instance a broad definition of health can be used that includes physical as well as psychosocial dimensions. This is important because the understanding of 'health' and 'safety' determines the fields of action that must be addressed by the incentive scheme.

Linked to this understanding there are many factors which influence the scope of an incentive scheme. To get a first impression of such factors and their influences it is useful to reflect on and specify some 'design principles' for the specific ideas of a planned incentive scheme. Examples for such design principles could be the following:

The incentive scheme:

- should identify and appraise organisations and employees that have a serious interest in improving work safety and are ready to implement the necessary measures,
- should focus on small and medium enterprises where OSH issues are often of lower interest and priority,
- should motivate the incentive recipient to implement measures systematically,

- must link incentives with verifiable criteria, so that incentives may only be granted if the fulfilment of criteria is verified,
- must be improved continuously in order to maximise the effectiveness and efficiency for all involved/affected persons,
- has to consider the interests of all relevant target groups,
- should create a win–win situation for incentive provider and incentive recipient,
- should be objective, transparent and comprehensible,
- should balance benefits and efforts for all participants in an appropriate way,
- should be open for all interested people with a serious interest in the improvement of health; suitable conditions regulate accessibility options.

Once the specific 'design rules' have been defined they can be used as guidelines during the whole strategy development process, where the different rules are refined step by step.

In order to ensure win–win situations for incentive provider and recipient it is necessary to identify where benefits for both could be gained. Therefore it is advisable to specify areas where strategic analyses must be carried out to identify and quantify the potential benefit and to link the crucial enablers for the improvement of health and safety. Fields for action could be, for instance:

- behavioural prevention
- situational prevention
- statistical data related to health and safety
- health and safety as part of the organisation's mission.

**Step I: Strategic analysis**

In step I a strategic analysis has to be carried out to create a holistic picture of the starting point for the incentive provider and the incentive recipients. Therefore all relevant information for the development of the incentive scheme has to be gathered. The content of the analysis can be subdivided into two parts: the analysis of internal and external prerequisites.

Internal prerequisites can be understood as all resources of the incentive provider that are necessary to implement and operate an incentive scheme. Some of the most important resources are:

Available personnel and financial resources – the development and continuous operation of the incentive scheme can be time-consuming. The scope of the scheme will be limited by the resources available. However, as the analysis of EU-OSHA case studies has shown, most incentive schemes have been implemented without any significant additional staff or financial requirements for the incentive provider. It is just a question of intelligent reorganisation of resources.

Internal core competencies and needs for development – the operation of an incentive scheme needs specific competencies, especially concerning the fields for action (step 0). If the scheme promotes fields for action that are new to the organisation, competencies have to be developed.

Intended benefits for the incentive provider and key performance indicators to monitor success.

According to the internal prerequisites there are external stakeholders and forces that could influence the success of an incentive scheme. Therefore all relevant groups have to be identified and their interests/needs concerning the incentive scheme should be established and made transparent. Some examples for relevant stakeholders and forces for an incentive scheme are the target groups for incentives (see Chapter 3) and legal and socio-economic restrictions, as well as strategic partners and opponents (for instance social partners or other insurance associations).

Once all internal and external chances and constraints have been determined, it is possible to determine and prioritise strengths, weaknesses, opportunities and threats that are linked to the implementation of an incentive scheme. Conflicts of interests between the different stakeholder groups become evident, and possible ways of solving these conflicts must be developed.

**Step II: Derive strategic goals**

In the next step strategic goals must be drawn up to focus the further conceptual development of the incentive scheme and to provide a base to measure progress against. Strategic goals can be derived from the defined understanding of health and the linked fields of action to improve health and safety. Two further kinds of strategic goals should be distinguished: 'results-orientated' goals to appraise the improvement of health, and goals to monitor the improvement activities that are needed as enablers for future improvements. The goal description should consider the 'SMART' criteria (Specific, Measurable, Accepted, Realistic, Timely).

An example of an appropriate strategic goal is: 'Our insured companies with a number of severe accidents (more than 35 days of absence per accident) above four accidents per year should bring down this number to 0 within three years.' One sub-goal regarding the activities could be: '80% of our insured companies with a number of severe accidents (more than 35 days of absence) above four accidents per year should provide safety ladders for their employees and train them how to use them.'

Another important point in this context is to prioritise the strategic goals and check whether there are any conflicts in terms of stakeholder interests/needs. The way in which the goals are reached is important, as various factors may contribute to the process and it is necessary to identify and quantify the role the incentive scheme has played in achieving the goals.

**Step III: Develop alternative strategic concepts**

After the strategic goals have been defined, adequate ways of achieving these goals must be identified. Therefore it is important to draw up a holistic picture of the desired future situation, which includes a description of the role the incentive scheme is intended to play in the future for your organisation and for the incentive recipients. A timeline, goals to be achieved and the perception of stakeholder roles provide a view of the future and a reference against which progress can be monitored. There are many different ways to get to this point, but all scenarios have to consider the following aspects:

Which incentives should be offered? (for example, quality label, premium bonus, non-monetary gifts, tax reductions).

What kind of measures should be promoted by the incentives? (such as a quality label for ergonomic improvements or training, or a premium bonus for measures to reduce the accident rate).

What is the assessment procedure and what are the criteria assessed? (for example, audits, assessment of health indicators).

What are appropriate ways to deploy the incentive scheme (for example, to ensure that the right fields of action are addressed in the future)?

After different scenarios have been defined it is important to evaluate and compare the strategic concepts and select the best alternative. A checklist can help to consider the main aspects and to get an impression about the gap between the current and the future situation. Possible dimensions/criteria of such a checklist can be:

Internal factors and constraints:

- necessary infrastructure (for example contact person, consulting, tools, etc.),
- necessary internal resources,
- qualification measures, etc.
- External factors and constraints:
- fulfilment of legal requirements,
- necessary information and communication concept, etc.

Contribution to strategic goals (improvement of strategic goals defined in step II.)

Sometimes it is useful to adapt and weight the selection criteria to meet the specific requirements of the organisation.

**Step IV: Deploy selected strategy**

The successful implementation of an incentive scheme requires systematic project management, sufficient resources and a complementary information and communication strategy. The most important steps in designing the process are outlined below.

In the first step it is important to define work packages which are linked to the content of the strategic concept already selected. These work packages will clarify how the identified gaps will be closed (for example, how to build up infrastructure, qualify employees, build up internal responsibilities and tasks for continuous operation of the incentive scheme, etc.). After all work packages are defined they should be linked with a schedule for implementation. A chronological order of work packages and defined quality gates/milestones are useful to control the work in progress (for example, measurable goals to assess the fulfilment of work packages). In addition it is important to validate the implementation concept with stakeholders. The planned implementation process and the concept for the incentive scheme should be discussed with all relevant stakeholders (for example, CEO, representatives of legal administration, customers) to identify if there are any needs for change. If necessary the planning has to be changed before moving into action.

**Step V: Control strategy implementation**

During implementation the fit between planning and acting has to be checked. This is a task of the project management, which has to be established before the implementation of the strategy. The project manager assesses the work in progress and adapts the work packages and goals if necessary. Before roll-out the incentive scheme has to be announced and promoted for/by all relevant stakeholders (see Chapter 5).

**Step VI: Strategy review**

To ensure the effectiveness and efficiency of the incentive scheme checks must be made of whether and how the strategic goals are reached. Sometimes the chosen strategy for the incentive scheme is inadequate and it is necessary to modify the concept in certain respects (for example, changing the incentives offered to retain the motivation of incentive recipients, opening the scheme to new target groups or adjusting the granting criteria). This may also be necessary in the event of changed general conditions which have an impact on the incentive scheme (for example, changes in legal requirements). So it is important to assess whether the strategy is still useful and whether there is potential for future improvements, thus creating a continuous improvement process.

# 3. Defining target group and areas of action

Please note: If there is existing information about the target group and the risks, the following detailed analysis may not be necessary.

Economic incentives are provided to motivate a target group externally to change behaviour and act in a way that is favourable for the incentive provider. A very important part of the strategy development (see Chapter 2) is to define which target groups should be addressed. For an insurance organisation target groups can be the insured sector, company or worker. For a political institution it might be a local region, an age group, a sector or a high-risk profession. For the incentive provider these definitions will be in the centre of planning an incentive scheme and usually an idea of which target groups to address will emerge in a very early stage of planning. Depending on the goals of the incentive provider, the target group may fall into one of the following categories:

- high-risk groups
- high-cost groups
- groups with a low self-efficacy, where self-regulation will not happen automatically (for example, low-income or low-education groups).

An insurance company may, for example, be aware that small companies in the construction sector experience a disproportionately high amount of fall from height accidents, which account for equally high costs for the institution. They may therefore consider reducing their costs by implementing an incentive scheme for this specific group.

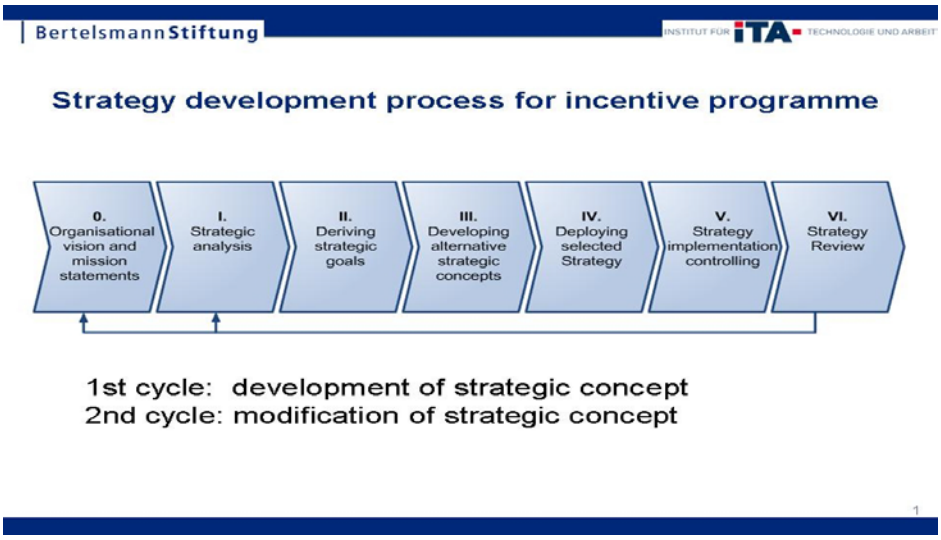
It is possible that several target groups may be identified. In this case some prioritisation should be done. It might happen that the most appropriate group for the incentive scheme is not the one with most accidents or diseases but rather the group for which it is easiest to introduce the scheme. First the need for an improvement has to be identified, but then it is also necessary to find practical solutions that can be promoted by an incentive scheme. If no practical solution can be offered, another priority group has to be chosen.

In order to design the economic incentive scheme for the group(s) identified, it is necessary to study carefully the accidents or work-related diseases experienced by these groups. One useful way of doing this is to analyse the number and the severity of occupational accidents in a quantitative data analysis. Another strategy is to do a qualitative analysis through interviews or workshops with experts including the target groups. Examples for both strategies are given below.

**Outline for a quantitative and qualitative data analysis to determine preventive measures**

The study should focus on factors that accumulate the highest number of accidents/sick days or factors that lead to high claims, where it is necessary to intervene in order to obtain a reduction in these figures. It is essential to collect some statistical data detailing the breakdown of claims, as this will make it possible to further refine the design of mitigation measures. Figure 2 shows three steps that need to be taken to complete this analysis.

**Figure 2: Outline for the analysis of target group needs**




**Step 1 – Definition of accident-related variables: factors and indicators**

The aim of this stage is to identify relevant accident- or sickness-related variables in order to collect and to structure the statistical information collection process and to present these data in an appropriate manner. A structure of factors and indicators considering the most common issues that should be discussed is proposed here, although there may be other alternatives. The selection of the most appropriate structure will depend on the type of study that is to be carried out.

When a workplace accident occurs, four main factors are relevant from the point of view of prevention of occupational risks: the company, the worker, the work and the event. The first three factors consider elements that are usually part of work, and the fourth factor refers to the unusual circumstances that cause an event and its consequences. The analysis of each of these four basic elements should be the raw material for the screening process of the fundamental problems that cause most accidents in the target group concerned. Each of these four major factors includes a range of indicators that describe the state of the target group in relation to that factor. The indicators are only intended to serve as a guide; it is not necessary to analyse them all, but only those that are deemed relevant. However, the more indicators that are analysed the more thorough and complete will be the entire analysis.

The selection of a target group can predefine one or more factors or indicators, so the analysis should focus on finding out how the remaining factors and indicators affect the occurrence of accidents or sickness. For example, if the target group is a sector of activity, we are partially defining the company factor. Similarly, if we select employees with a high level of psychosocial risks as the target group, we are establishing some indicators of the work and event factors. The complete range of indicators within their respective factors is listed and explained below.

The company

- Sector of economic activity: this refers to the main productive activity undertaken by the organisation (industry, construction, etc.). Data provided by ESAW (European Statistics on Accidents at Work) or ESOD (European Statistics on Occupational diseases) use NACE codes (French: Nomenclature statistique des activités économiques dans la Communauté européenne; Statistical Classification of Economic Activities in the European Community).
- Size of the enterprise: this refers to the total size of the company's workforce.
- Size of the local unit: this refers to the size of the workforce in the particular workplace under consideration.
- Preventive organisation system: human and material resources allocated by the company for developing preventive activities and its management.

The worker

- Sex: gender of the worker, male or female.
- Age: it can be considered as an age range in order to include more workers; for example, workers over 55 years.
- Occupation: this indicator must not be misunderstood as the professional profile of the victim. It refers to the occupation or the job task of the worker. ESAW data refer to ISCO codes.
- Employment status: the job stability or type of contract of the worker may be issues that generate more or less likelihood of suffering an accident or illness (for example, contract labourers may have more accidents and work-related diseases as compared to regular workers).
- Experience in the company: how long the worker has been part of the business organisation.
- Experience in the occupation: how long the employee has performed a specific job. This indicator should consider all the companies the employee has worked for.

The work

- Specific physical activity: specific activity undertaken by the worker just before the accident or illness.
- Working process: the overall activity undertaken by the employee at the time of the accident or illness. It does not refer to his/her job or the specific physical activity.
- Working environment: general environment (physical, psychosocial) of the worker at the time of an accident or before sick leave was taken.

Event of an accident

- Deviation: abnormal events leading to accidents.
- Material agent: object, instrument or tool directly involved in the accident. Contact – mode of injury: how the victim was injured and how the person came into contact with the object that caused the injury. This action is therefore directly linked to the deviation, which is the event that triggers the accident.
- Date and time: when the accident occurred.
- Type of injury: type of harm suffered by the employee.
- Part of body injured: part of the human body in which the damage was produced.

Analysis of quantitative factors, such as size of the enterprise, size of the local unit or age, should be done with care. Using the statistical mean or average should be avoided in this context since it may often be inappropriate. A more advisable approach is to consider the distribution of the number of accidents, claims severities or diagnosed illnesses relating to the factor in question. In analysing the distribution it might be possible to identify ranges of this factor that make up for a certain proportion (for example, the majority, 75%, 50%, etc.) of accidents or sickness absence.

Step 2 – Acquisition of data: existing or new

Once the structure of significant variables has been defined, the proper data must be collected, either through new surveys or by collecting information that already exists in this regard. Obviously it is more convenient to take advantage of data from surveys done before, either partially or wholly. Interesting sources for accidents on the EU level include European Commission (2009) and Eurostat (2010), although other similar statistics can be used nationwide.

Step 3 – Data analysis and findings

The information collected about the target group is a set of real data that provides information on the group's work situation. It consists of figures that should be analysed in order to detect the weak points that generate claims. Afterwards some conclusions should be drawn concerning preventive areas that have to be modified. Preventive measures can include:

- Substitution, preventing risks at source
- Technical measures; for example, providing safer equipment and machinery
- Organisational measures, such as barring certain groups from access to certain areas, instructions, training
- Personal measures, such as harnesses and safety boots
- Any combination of the above; for example combining technical measures with instructions on how to use them.

If quantitative data are not available or are difficult to get, qualitative data may be collected instead. These data can be obtained through interviews (following the structure as given for the quantitative analysis) with appropriate experts such as health and safety professionals. The workers themselves should also be considered as experts on their working conditions.

Very often the analysis will rely on a combination of quantitative and qualitative data. However this information needs to be completed through an interpretation of data by experts in order to determine the causes behind the accidents/diseases and to propose suitable preventive measures.

**Example of a statistical data analysis of accidents in the construction sector**

The construction sector was selected as a target group because it has a high accident rate. The three-step approach discussed above will be applied to this data analysis.

Step 1 – Definition of accident variables: factors and indicators

The structure of four factors and their corresponding indicators proposed earlier in this chapter will be used.

Step 2 – Acquisition of data: existing or new

The Eurostat survey on work accidents (European Commission, 2009) will be used for the data analysis. These data are based on harmonised national statistical sources. Indicators not provided by the survey have been ignored.

The company

In this factor the activity indicator is already defined as the construction sector. However, other indicators within this factor can be analysed.

Size of the local unit: the statistics of incidence rate by size of local unit (EU15 + Norway) for 2005 show that local units of 10–49 employees have the highest rate of accidents leading to absences of more than three days and the third highest rate of fatal accidents. On the other hand, local units of 1–9 workers have the highest incidence rate for fatal accidents and the third highest rate for accidents with more than three days of absence, so the choice of either of the two options will depend on what type of accidents we want to try to reduce.

As size of the enterprise and preventive organisation system data are not available in the survey mentioned above (European Commission), 2009, no conclusions can be drawn about these indicators.

The worker

- Sex: data about number of accidents at work leading to more than three days of absence for 2005 by sex (EU15) show that men suffer the vast majority of accidents. In addition the reduction rate of accidents between 1995 and 2005 was much slower for male workers than female workers. Regarding fatalities, the data show the same trends. Data for accidents leading to more than three days of absence (EU15) in 2005 indicate that the rate for men was six times higher than for women, and the reduction rate for such accidents was six times lower among men than women in the same period.
- Age: the data show the average age of victims of fatal and non-fatal accidents. However these parameters are not valid to meet the goal of the analysis since they do not reflect the distribution of accidents throughout the different age ranges.
- Occupation: considering the distribution of non-fatal accidents by occupation for high-risk activity sectors (EU15, 2005), extraction and building trades workers account for by far the largest percentage of accidents within the construction sector (64.3%).

For the rest of the indicators, such employment status and experience no information was found.

The work

- Specific physical activity: data related to non-fatal accidents (EU_V,1 2005) show that movement and handling of objects are the main physical activities to take into account. For fatal accidents data for EU_V over the period 2003–2005 also confirm movement as one of the main elements as well as driving / being on board a means of transport or handling equipment.
- Working process: fatal (EU_V, 2003–2005) and non-fatal (EU_V, 2005) accident data present excavation, construction, repair and demolition as the most common processes involved in accidents of all severities.
- Working environment: fatal (EU_V, 2003–2005) and non-fatal (EU_V, 2005) accident data refer to construction site, opencast quarry and opencast mine as especially harmful environments.

The event

- Deviation: this indicator shows that for non-fatal accidents (EU_V, 2005) loss of control and slipping, stumbling and falling – fall of persons are the main deviations in the construction sector. For fatal accidents (EU_V, 2003–2005), data emphasise the second of the deviations mentioned above.
- Contact – mode of injury: data about non-fatal (EU_V, 2005) fatal accidents at work (EU_V, 2003–2005) reveal horizontal / vertical impact with / against stationary object (victim in motion) as the most outstanding concept.
- No exclusive information for construction sector is available about material agent, type of injury, part of body injured and date and time of the accident.

Step 3 – Data analysis and findings

Taking into account all the results obtained from the indicator analysis, we could characterise the construction sector in the EU level through the four factors, so that we could identify the main needs in the sector as follows:

Companies:

- Local units: < 50 workers.

[1] EU_V: European Union aggregate which varies according to countries for which data are available.

Workers:

- Sex: male.
- Occupation: extraction and building trades workers.

Works:

- Special or physical activity: movement; handling of objects; driving / being on board a means of transport or handling equipment.
- Working process: excavation, construction, repair, demolition.
- Working environment: construction site, opencast quarry, opencast mine.

Events:

- Deviation: loss of control; slipping, stumbling and falling – Fall of persons.
- Contact – mode of injury: horizontal / vertical impact with / against stationary object (victim in motion).

Having thus analysed the causes of the accidents of the defined target group, preventive measures can be determined that would be suitable for improving the situation.

**Outline of analysis of target group needs through company surveys and interviews**

In order to set up an incentive scheme that will be well received by the target group, it is necessary to assess the needs of the group, for example by asking company representatives what their requirements, expectations and perspectives are. It is not enough to make careful analyses about the position of the incentive providers but to ignore the intended recipients. The goal is to create a win–win situation between the provider and the recipient. The employers and the employees will need convincing reasons to join the scheme.

The advantage of using a questionnaire for the assessment is that it enables a larger number of representatives to be included. A disadvantage of this method is that the results generated will be limited to the questions and answers defined in advance. An alternative method is to conduct qualitative interviews, but here only a small number of representatives can usually be included.

Questions to be included in a questionnaire or an interview guideline can be:

- Which are the major job tasks, departments or professions associated with health and safety problems in your company? Which types of sicknesses and accidents occur most often?
- How does the company deal with OSH tasks at the moment? Who is responsible?
- How does the company find support from external institutions to improve health and safety conditions? Which institutions offer what kind of support?
- How can the incentive provider offer more supportive resources that help the company to improve OSH structures and activities?
- Under what conditions would the company participate in an economic incentive programme?
- What kind of incentives would be attractive for the company (tax reductions, subsidies, premium variations, bonuses, improved bank conditions, awards/labels)? How should the incentives be structured to be most supportive?
- What kind of preventive measures would be most suitable for the company / the employees?

Results of the company surveys or interviews will be collected, assessed and analysed. Finally, the most important findings will be displayed in summary form to present to an external group of stakeholder and/or internal decision makers. Giving feedback of the results to the participating representatives should be considered to create a supportive network for the prospective incentive scheme.

**Example of a company survey on health-related incentive schemes**

A questionnaire was used to conduct a company survey in a project by the German Bertelsmann Foundation together with the Institut für Technologie und Arbeit (Institute for technology and work). The goal of this project was to develop a concept for health-related incentive networks.

The task of conducting the survey was given to the market research institution EUPD. 135 companies in Germany with an average size of 500 employees participated. Company representatives for workplace health were asked to answer the questionnaire. Of those who participated 61% were human resources executives and the rest were top management and occupational physicians. Sixty percent of the participating companies stated that they invest in workplace health. The results of the project are given in Zinnk et al., 2009, from which the data here were obtained.

**Figure 3: Assessment of expectations towards institutions**

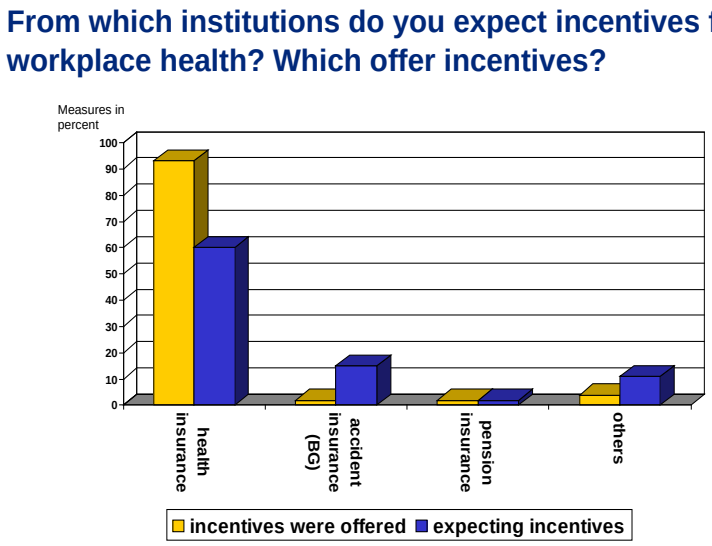



Figure 3 shows which institutions are perceived as incentive providers and what the expectations of the company representatives are. It shows that health insurance was seen as the main provider of incentives; expectations were therefore directed mostly towards health insurance. The second institution perceived as responsible for providing incentives was the accident insurance institution. Pension insurance does not play a role in the considerations of the companies.

**Figure 4: Most attractive types of incentives**

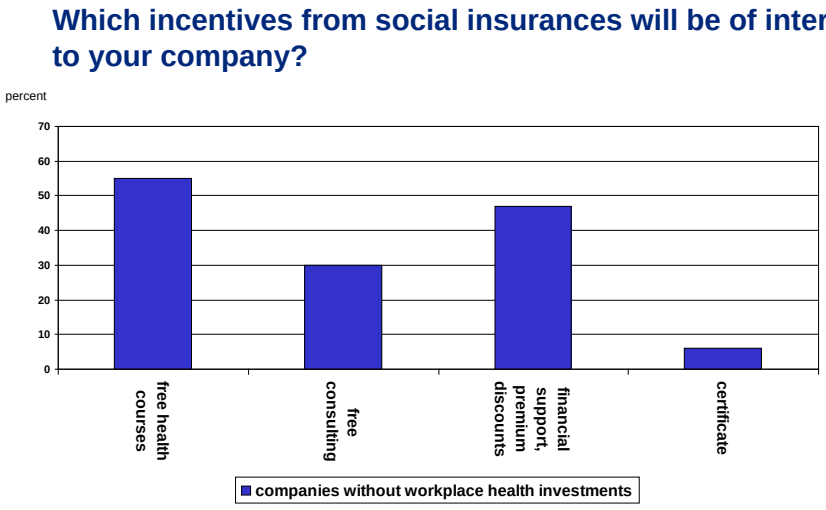


Figure 4 shows results relating to the attractiveness of incentive types to the participating companies. Around 50% answered that free health courses and financial support or premium discounts would be of interest to them. Subsidised OSH consulting was also of interest for one-third of the companies. Certificates were shown to be the least attractive incentive type in this survey.

**Presentation of findings to a group of stakeholders**

After completing the analysis, the evaluation and the survey of the target group needs, it is beneficial to present the results to a group of stakeholders for interpretation and definition of further steps. All stakeholders should be represented in this group of experts (business associations, trade unions, government).

In this workshop the focus can be on discussing the primary causes of the most typical accidents in the target group, typical diagnosis of sick leave or work- and company-related job strains. The exchange with stakeholders provides conclusions about the need to intervene in certain areas of the general preventive system and creates a supportive network for the implementation of the planned incentive scheme. An indicative list of possible target group needs is:

- industrial processes and technologies
- working methods
- working environment
- training and information of workers
- organisation of human resources
- work equipment and materials
- chemicals and related products
- OSH management system.

Chapter 4 looks more closely at measures that can be taken to develop effective incentive schemes.

After defining the areas of need it will be possible to design the tools of economic incentives in an appropriate way and also to assign the available resources to the most pressing issues.

# 4. Developing effective incentive schemes

Depending on the requirements of the assessed target groups, attractive types of incentives need to be defined. It is also important to find out which types of incentive schemes are likely to be successful under which national political and legal conditions. Therefore the relation between the socio-economic framework conditions in different countries (see Chapter 1) and the most appropriate incentive schemes needs to be considered.

The incentive provider aims to induce the incentive receiver to introduce or improve preventive measures by means of the incentive scheme. These measures can be:

- substitution, preventing risks at source
- technical measures, such as safe(r) machines
- organisational measures, such as instructions, training, motivation
- personal measures, such as harnesses and safety boots.

Quite often a mixture of measures is most appropriate, such as combining technical measures with instructions on how to use them. Some types of incentives are more or less linked to certain types of measures. However in many cases the incentive scheme does not stipulate the type of measures to be taken. At the end of this chapter there are some examples which could be considered.

**Types of incentives**

The following economic incentives to promote occupational safety and health can be found in European countries (EU-OSHA, 2010):

- Insurance premium variations, for example dependent on
  - Occupational accidents and diseases (experience rating)
  - Specific risk of sector
  - Prevention activities such as training, investments, personal protection measures
- State subsidies, for example for innovative investments or reorganisation
- Tax incentives, such as better write-off conditions
- Better banking conditions, for example lower interest rates
- Non-financial incentives, for example certification of OSH management systems or awards

**Insurance premium variation**

Many common incentive schemes in Europe are based on insurance premium reductions. If the premium reductions are simply calculated according to the risk of the company, taking into account past accident insurance and disease rates, this so-called experience rating process is very easy to apply. In addition a large number of companies can take part in this incentive scheme, as it applies to all insured companies. Research about the effectiveness of experience rating found evidence (for example Tompa et al., 2007) that a lower rate of accidents is achieved. The effect of experience rating is analysed in depth in the incentive scheme of the Finnish agriculture sector. Using administrative data, Rautiainen et al. (2005) conducted interrupted time series analyses which showed that the premium discount reduced the overall claim rate by 10.2%. However, the authors do not exclude the possibility that under-reporting could have contributed partly to the claim reduction, although actually no farmer would benefit economically from such a practice. The possible bonus in the insurance premium would always be much lower than the cost of an accident which would not be reimbursed if it was not reported. Under-reporting is often discussed as a possible negative side effect of experience rating. As the Finnish example shows, such a practice hardly ever leads to a positive economic benefit for the under-reporting company, if the incentive scheme is designed in the right way.

Kohstall et al. (2006) propose that both positive and negative incentives should be used in an incentive system. Through negative incentives (or disbenefits), companies that remain significantly above the sector's average accident rate can be obliged to pay an augmented insurance premium. This would increase the visibility of bad OSH performance and therefore raise awareness in the enterprises concerned. The normal insurance premiums are usually planned into the budget of companies. A positive variation is of course welcomed, but only a negative variation will force companies to adapt their budget planning and therefore make them think more deeply about taking preventive measures. Further negative deviation in insurance premiums can serve as a psychological 'foot in the door' for labour inspectors or safety representatives trying to persuade an enterprise to put more effort into OSH.

Overall, research literature provides convincing evidence for the positive effects of experience rating, but nevertheless there are some potential shortcomings connected with this method. Small and medium-sized enterprises (SMEs) in particular rarely profit from such incentive schemes and therefore the insurance schemes of FBG (Germany) and INAIL (Italy) combine an experience rating system with a funding system that rewards specific prevention activities as well. The statistical evaluations of both case studies have proven the effectiveness of such an approach, leading to significantly lower accident rates and better health outcomes among participating enterprises. For SMEs it is important to create a direct link between OSH activities and a reward, such as an insurance premium reduction. Therefore, effort-based incentive schemes are more effective for SMEs than pure experience rating approaches.

Possible adaptations of this type of incentive scheme could be a start, with high premiums that are reduced annually if no accidents occur (as in car insurance). Another idea could be to reward increased reporting in order to receive more detailed information on accidents/diseases.

Example: Incentive scheme of the German Butchery Sector Accident Insurance (EU-OSHA, 2010, p. 208)

Premiums are reduced in participating companies for preventive measures, for example those concerning knife accidents, falls and slips, machines and traffic safety. The economic incentive can reach up to 5% reduction of the insurance rate. An OSH audit is also offered, in which more than 40 companies participated in 2008. During the period evaluated (2001 to 2007) target fulfilment of the participating companies improved continually. Starting at a similar accident rate in 2001 (92 per 1,000 full-time workers) the six-year participants reduced their accident rate to 65, compared to only 78 per 1,000 FTE in non-participants. A cost–benefit analysis comparing the costs of premiums granted and the theoretical accident cost reduction showed that financial benefits were significant on the side of the insurance. As a positive side effect the collected data can serve as a benchmark for other companies and as a foundation for scheme development.

### Subsidies

Subsidies exist in all EU Member States independent from social systems. They can be targeted at the prevention of specific risks or the stimulation of innovative solutions. Subsidy schemes are appropriate, if the aim is a targeted promotion of specific prevention activities, for example to keep older workers in employment (such as the Danish Prevention Fund, Belgian Experience Fund). Innovative solutions can be supported taking into account the individual needs of each enterprise. Often these schemes are open for all sectors and sizes of companies. Subsidy schemes usually have a limited budget because public institutions have to plan their expenses on a long-term basis. However, this advantage for the incentive-offering organisation can have some drawbacks for applying companies. For example, an application for a subsidy could be awarded to one company but refused another company with matching criteria, simply because the second application was handed in a few days after the first, and the funding budget had been used up. In addition, subsidies are sometimes refused because the application does not meet the criteria of the scheme, for example it may be judged not innovative enough. In addition it is often difficult to reach high numbers of enterprises, and in some cases there is an unclear relation between effort and reward.

Example: Subsidy scheme for covenants concerning health and safety issues in Dutch employment sectors (Veerman, 2010)

A covenant in general is a type of contract promising to engage in a specified action. The Dutch covenant programme (1999–2007) entailed sectoral agreements – containing precise and measurable goals and targets – between employers, employees and the government for improving working conditions and reducing sick leave. The total amount invested in the covenants is estimated at €303 million, of which 55% was paid by the social partners in participating sectors and the remaining 45% by the Ministry of Social Affairs. A total of 67 sectoral agreements were realised, covering over 50% of the total workforce in the Netherlands. Goals most often set in the covenants were the reduction of sick leave, psychosocial stress or physical stress / lifting. Costs per worker per year varied over sectors and were typically €10–€30. The value of the extra reduction in sick leave in covenant sectors, calculated by value added per labour year, amount to €2.7 billion. It is not known how much of the reduction can really be attributed to the covenants, but even at a low estimate of 33%, the payout ratio would be €3 for each euro spent.

The preventive measures were usually developed during the project by work groups consisting of the relevant stakeholders, including the workers or their representatives. The measures were often a combination of the different types and could include substitution of harmful substances, ergonomic aids, specific training, job rotation, job enrichment, leadership coaching, consultancy, etc.

### Tax incentives

In a few EU countries tax incentives to promote OSH activities exist. If governments wish to support OSH financially and reach a larger number of enterprises this can be an incentive of choice. Granting an incentive can be based on a closed list of OSH activities or investment in equipment, as shown in

the Dutch Farbo scheme. Because such schemes are easy to apply and the relationship between effort and reward is quite clear, they can have a highly motivating effect on companies. They can encourage company financial departments to develop an increased interest in OSH. However, tax schemes can only incentivise tax-paying organisations and therefore leave out most public and non-profit organisations. Other problems with this type of incentive are dead weight loss effects and the provision of budget.

Examples:

- In Latvia a tax exemption on general expenditure on labour protection measures exists.
- In Germany tax incentives for occupational health promotion were introduced in 2009. Employers can write off up to €500 per worker per year from tax for activities which promote occupational health.
- In the Netherlands the Farbo scheme was first developed as a tax system, but in 2005 changed into a subsidy system. In 2009 it was decided to abolish the scheme.

Tax incentive schemes are often focused on technical equipment, but training courses or the implementation of health and safety management systems could also be integrated into the schemes.

**Improved banking conditions**

General financial encouragement to enterprises can be used to leverage specific improvements in health and safety practice. One method is to specify particular investments in the health and safety area to be funded from subsidised bank credits. This can be achieved through a cooperation scheme of banks on the one hand and public funding authorities or accident insurance companies on the other hand. Such credits could be used for the implementation of OSH management systems or the purchase of improved equipment and machinery. Nowadays, this can create a considerable incentive, especially for SMEs, which experience great difficulty in getting loans from banks at all. In addition to gaining a financial benefit due to lower interest rates, the opportunity to gain access to additional financial means is very motivating.

This kind of scheme also encourages banks to take more interest in the OSH management of their clients, as it contributes to the general risk management of companies. Enterprises with good OSH performance will be less likely to suffer from severe accidents and therefore they are a safer investment for the bank with less risk of insolvency. According to HSE research, 60% of companies experiencing a disruption lasting more than nine days go out of business.2 Also, banks are obliged to scrutinise their clients' risk management more closely due to stricter banking regulations (such as the Basel II regulation).

Example:

- After the Italian Workers' Compensation Authority began to subsidise bank credits, in order to stimulate investment in health and safety among small businesses, the companies taking part in the scheme reported a reduction in workplace accidents of between 13 and 25%.

**Non-financial incentives**

Economic non-financial (ethical) incentives in OSH aim to give positive recognition of companies that invest in safer and healthier workplaces. These forms of incentives do not have substantial financial implications. The benefit lies in the improved reputation for the enterprise concerned. Non-financial incentives can be awards for good-practice implementation of OSH measures or certification of OSH management.

[2] http://osha.europa.eu/en/topics/business-aspects-of-osh

Examples:

- The German BGW Health Prize (Statutory Accident Insurance of the Health Care Sector), awards within the framework of the OSH partnership scheme for 'Innovations in Prevention' and 'Healthy Employees – Healthy Company'
- Pro-Safe Award in Belgium
- System of the red, yellow, green and crowned smileys in Denmark, which allow the general public to see how an enterprise is performing in OSH
- Safe Work Leaders' Forum and the National Competition to improve Working Conditions in Poland.

**Fit between incentives and country characteristics**

The differences between countries and economic incentive schemes naturally have an influence on the potential transferability of incentive schemes in OSH. Subsidy systems, tax incentives and non-financial incentives should be theoretically possible in all EU countries. Regarding insurance incentives, it is useful to distinguish between two major groups of countries with a different workers' compensation approach: 19 countries have a monopoly structure regarding the accident insurance scheme and eight countries have a private competitive insurance market. Experience rating approaches can be found in both competitive and monopolistic markets. However, there are differences when it comes to the funding of future-oriented prevention efforts, such as training or OSH investments.

In monopoly structures the problem of changing clients does not exist. Enterprises have to stay with the same insurance company and hence it is guaranteed that the insurer will benefit from better prevention among its clients. In this regard it is much easier in a monopoly system to offer incentives that reward prevention efforts as well as prevention results. The challenge is rather to find out which OSH activities are most likely to deliver a significant improvement in OSH performance in the future, and at the same time are relatively easy to control. As the insurer is subsidising these activities there is a certain potential for the abuse of the system in that companies could try to claim for activities that have not in fact been carried out.

In a competitive market the insurance company runs the risk that enterprises could change their insurance provider at short notice and therefore investments in prevention efforts could benefit its competitors rather than the original insurer. Investments in health and safety usually pay off only after a longer period of time, and this contradicts to some extent to the free choice of insurance companies in a market-based system. A possible solution could be the introduction of more long-term contracts, but it may be difficult to persuade employers to give up their freedom of choice. Another possibility would be for all private insurance companies to contribute equally to a common prevention fund that can subsidise clients' OSH activities. By financing the prevention activities this way, companies that change their insurance provider do not enjoy an unfair advantage, as the fund would have been financed by all insurance companies. Some countries with a private insurance market have already developed such model, such as the Work Environment Fund in Finland. However, there is also evidence that in a competitive market experience rating could strengthen the competition between insurance companies, as they are forced to offer more individual premium rates (Clayton, 2004).

**Appearance of incentive types in EU countries**

Insurance-based incentives are quite common in Europe, although in some countries they do not exist at all (Denmark, Estonia, Greece, Spain, Sweden, the UK). Subsidy schemes are, however, used in nearly all countries.

It is also apparent that some countries without any insurance incentives offer more public subsidy schemes (for example Spain, Denmark). Therefore it can be useful to consider which type of incentive serves best to achieve what kind of objectives. Insurance-related schemes like the funding scheme of the German butchery sector (FBG) described above are advantageous if a large number of companies can participate. The incentive scheme is simple to apply for, as the company only has to complete a two-page questionnaire. In addition, participating companies can be sure that, if they

fulfil the specific criteria of the list of specified prevention activities, they will be awarded a certain number of bonus points and receive a proportionate reduction in their insurance premium. The fact that the bonus is deducted directly from the insurance premium further simplifies the administrative process. The clear relationship between the company's prevention effort and the reward, which is paid without delay, make the incentive scheme very motivating. This is shown by the high number of participating companies (46% of all potential users).

**Economic incentive schemes, preventive measures and company characteristics**

It is important for the success of preventive actions to ensure a wide dissemination of information about the kind of measures promoted and to link the actions carried out to preventive indicators. It is appropriate to grant incentives of higher extent to companies that achieve outstanding results in their health and safety interventions. Experience shows that company size influences the scope of interest in incentives: smaller companies are often interested in funding to invest in equipment, whereas larger companies focus more on actions aimed at improving work organisation. Some examples are given below.

**Improving equipment, devices or machinery**

Measures can be related to the change or improvement of technical equipment in the work environment. An improvement of production technologies through the replacement of obsolete machinery and systems can be rewarded, where the use of inadequate technical equipment can cause ill health or accidents. This can include the refurbishment of work premises or the installation of monitoring systems to reduce exposure to hazardous substances in the workplace. These measures are usually preferred by companies because they often bring an improvement of productivity at the same time.

Some examples:

- The company performs a planned and preventive replacement of the components of machines or equipment.
- The employer systematically collects and analyses information on work strain and accidents involving machinery, plant and individual items of equipment.
- The company has a contract with a firm specialising in the planned maintenance of equipment, machinery and plant.
- Tests, controls and maintenance are carried out on the fire-fighting system and on the relevant fixed and mobile equipment with a higher frequency than the provisions in force.
- A system to monitor the status of the working environment is installed in order to control workers' exposure to chemical, physical and biological agents.

**Implementation of training and information activities**

Training of employees is particularly effective as it improves their ability to complete the work tasks with a low level of sickness or accidents on a long-term basis. It is important to implement procedures that guarantee the correct and ongoing training of workers. The standard of learning achieved by each worker in the field of health and safety at work needs to be evaluated regularly. Training activities should be organised by professionals experienced in the work field, guaranteeing the sharing of data on case studies, accidents and occupational diseases in each sector. Measures related to training and information can also be promoted by qualification funds.

In the case of tools and products used for education and training that are aimed to be rewarded by the incentive scheme, certain features of the projects should be defined and specific scores should be established.

- completeness and adequacy of content vis-à-vis the topics dealt with.
- level of usability by the target groups.
- number of members in the target group.

- communication effectiveness compared with the types of target groups.
- degree of innovation with reference to existing tools and products.
- index of national-level hazardousness attributed to the manufacturing activity.

Some examples:

- Training courses to make workers aware of the risks, of the dangers of substances, processes and activities, prevention and emergency procedures
- Training courses that increase the ability of the workers to cope with job demands, stress and strain.
- Information tools and products to provide the largest number of workers with innovative information or training tools, specific and easy to understand.
- training courses in the field of hygiene and safety at work specific to their economic sector.
- Information and training courses for foreign workers with the integration of language courses.

**Increasing transportation safety**

Considering the high number of traffic accidents affecting the road transport sector, this is a particularly important topic in this field of work, and there are many innovative schemes.

Some examples:

- The staff in charge of road transport attends specific safe driving courses with both theoretical and practical elements.
- The company installs tachographs even on vehicles for which this device is not compulsory.
- There are verifiable procedures that guarantee the presence of a second driver when overall travel time exceeds the prescribed time per day.
- Planned maintenance is carried out, for at least half of the vehicle fleet, more frequently than compulsory overhauling.

**Corporate social responsibility activities**

Corporate social responsibility (CSR) is the voluntary adoption by a company of social and environmental concerns within its business and in its relations with internal and external stakeholders. It is possible to implement new solutions based on the social responsibility principles of ISO 26000. Measures in this field generally demonstrate a particular focus on the improvement of the health and safety conditions at work and in the fields of society surrounding the workplace. The positive consequences can include a reduction of health and safety costs, increased productivity with highly motivated workers, an improvement of the internal corporate climate, an increase in quality and an enhanced company image and reputation.

Some examples:

- The company defines as a corporate value that the health of workers, their family members and local community should be affected positively by the company activities
- The management not only cares for the health and safety of its own employees but also for the health and safety of suppliers and customers

**Continuous improvement of work processes**

It is effective to stimulate companies to take organisational, psychosocial and procedural measures aimed at improving the health and safety at work. Particular attention needs to be spent on a risk and

work strain evaluation process as well as the relevant involvement of workers through their representatives. The involvement of the top management in health and safety programmes and the inclusion of employees in decision processes benefit the effectiveness of measures. The involvement of all stakeholders prior to changes in personnel decisions, organisational structure, workplace layout or equipment replacement can be rewarded by an incentive scheme. Company actions that can also qualify for rate reductions include the implementation of environmental monitoring mechanisms or environmental management systems.

On the side of implementing procedures and processes some examples are:

- Adoption of defined good practice procedures and structures in the sector to improve the health and safety conditions at work.
- The employer systematically collects and analyses information on sickness absence and accidents.
- The company has a control system, entrusted to internal or external personnel, that allows a periodic overall review of the health and safety situation at work.
- Implementation of procedures for the selection of suppliers which takes account of the enforcement of health and safety at work.
- First aid and emergency management procedures through tests and simulations at a higher level than legally required.

On the side of involving all stakeholders in decision processes some examples are:

- Before renovating plant, changing the company layout or replacing equipment, relevant personnel are consulted, along with the workers' representatives.
- The company management participates in training courses on safety and health at work.
- Workers' safety representatives participate actively in risk assessment and provide their contribution for the drafting of the document.
- The employer involves workers by implementing specific procedures during the phases of risk identification, assessment and management.

**Implementation of an OSH management system**

Implementation of a system for the management of health and safety that meets the criteria defined in standards, guidelines, and rules recognised at a national and international level, represents one of the most effective measures to improve work conditions. An effective occupational health and safety management system increases the OSH performance and competitiveness of an organisation. In addition, the organisations obtain a benefit in terms of image on the market, demonstrating that the OSH management system is operating in compliance with law and with the aim of continuous improvement. During implementation small and medium-sized enterprises (SMEs) often encounter problems because they have few economic resources available to modify their processes and difficulties in finding internal or external professional personnel who are able to help implement the management system.

A certification authority is required to certify the compliance of the management system with the reference standard adopted through the control procedures coded by specific rules and regulations. A certification authority can assure the correctness of the rules of the certification and equally supply verification of the application. The logical start is given by the Deming Circle, systemic management and organisation processes based on the sequence Plan-Do-Check-Act. In this way the organisation, looking at itself, can improve its performances in health and safety continuously, giving raise to a virtuous process.

A study conducted by the Italian accident insurance INAIL has compared the accident rates of companies with a certified OSH management system vs. other enterprises. Table 1 shows the results of the study which show for several productive sectors, that the Frequency Index of accidents at work in certified companies is 40–50% lower than in other businesses. The Gravity Index also shows better

results in the companies with a certified management system. In the transport, mining and chemical industries the reduction of gravity index is very important and relevant, while in service, construction and energy sectors the differences are not so high.

**Table 1: Frequency and gravity index or accidents at work in 18001 certified and non- certified companies in Italy**

| Productive sector | Enterprises with OSH management system certified | | Italian average | |
|---|---|---|---|---|
| | If | Ig | If | Ig |
| Services | 10.76 | 1.07 | 14.12 | 1.18 |
| Agricultural and food industry | 30.77 | 3.86 | 50.10 | 3.85 |
| Chemical industry | 22.04 | 2.33 | 41.02 | 3.10 |
| Construction industry | 41.87 | 8.12 | 50.80 | 8.47 |
| Energy, petroleum and utility | 43.17 | 2.34 | 23.01 | 2.49 |
| Mechanic, metal mechanic, metallurgy industry | 25.94 | 1.41 | 46.21 | 3.93 |
| Mining industry | 22.03 | 2.14 | 57.95 | 6.27 |
| Textile industry | 19.28 | 5.63 | 45.26 | 6.39 |
| Transport industry | 22.42 | 2.57 | 41.19 | 5.87 |
| TOTAL | 20.67 | 2.07 | 24.43 | 2.65 |

If - Frequency index (x 1,000 workers): ratio between injuries and number of workers

Ig - Gravity index: is given by the following ratio: Ig=D/N. Where D is the number of working days lost due to professional accidents and illnesses and N is the number of workers employed in the productive sector.

**Preventive measures and company characteristics**

Table 2 gives and overview about the different categories of companies and their different needs regarding economic incentives in OSH. It contains four parameters: the risk level of the sector, the size of the company, the degree of the implementation of OSH management, and the degree of outsourcing. If for example, a sector with a high risk level should be dealt with, concrete actions with a focus on technical aspects need to be taken. In a sector with a low risk level, more focus should be put on training. When dealing with a large company, emphasis should be put on the promotion of OSH management, whereas smaller companies require projects with specific targets. For companies with a low degree of OSH management the improvement to a higher degree should be supported. For companies with better developed OSH management, trainings and awards can be applied in order to stimulate the improvement of working conditions. If the degree of outsourcing is high, a possibility can be to require a certification.

**Table 2: Criteria for the use of the different incentive types**

| Parameter | Low | Middle | High |
|---|---|---|---|
| Risk level of sector | Training | Organisation | Concrete actions; focus on technical measures |
| Size of company | Projects with targets | Projects with targets | Promotion of OSH Management |
| Degree of OSH management level | Promotion of OSH Management | Training | Award |
| Degree of outsourcing (supplier) | Good integration system for workers from suppliers | Good integration system for workers from suppliers | Give bonus when supplier has been successfully audited on OSH management |

### Success factors for economic incentives schemes

All incentive schemes naturally have to be adapted to the specific conditions of each country and sector. However, the EU-OSHA report (EU-OSHA, 2010) identified the following general success factors that should be considered when designing an incentive scheme:

The incentive scheme should not only reward past results of good OSH management; in other words past accident rates, but should also reward specific prevention efforts which aim to reduce future accidents and ill-health.

The incentive scheme should be open to all sizes of enterprises and pay particular attention to the special needs of SMEs.

The incentive should be high enough to motivate employers to participate.

There should be a clear and prompt relation between the desired prevention activity and the reward.

The incentive system should have clear awarding criteria and should be as easy to use as possible, to keep the administrative burden low for both participating enterprises and incentive-offering organisations.

If the incentive needs to target a large number of enterprises, insurance or tax-based incentives with precisely defined criteria are most effective (closed system).

If the desire is to promote innovative solutions for specific areas, subsidy schemes are most effective (open system).

# 5. Promoting incentive schemes

On the political level incentive schemes will only be developed by incentive providers if attractive framework conditions can be created or if the regulatory system demands the inclusion of incentive systems by law. Economic incentive schemes will only be successful if incentive receivers are convinced that they will get tangible benefits. Tangible benefits may include improvements in health and safety at work, improvements in profitability or productivity and in the reputation of the company. Political framework conditions that support or enforce the development of incentive systems can help to deploy these schemes. On the implementation level incentive schemes will only be successful if a significant participation rate among companies and organisations can be reached and awareness is created among the stakeholders. Incentive schemes will be used by companies if they can see tangible benefits for their operations. On both levels it is important as a first step to decide the target groups for the various fields of promotion. As a second step an effective communication process needs to be established that can lead to the development of a supportive network.

Lobbying at the political level is necessary to create framework conditions that promote economic incentive schemes. Networking and communication is needed with these target groups:

1 Competent ministries for social security / insurance in every EU country

2 Social partners on EU and national levels

3 National labour inspectorates

4 Financial ministries

5 OSH professional organisations

6 Competent Commissioners of the EU Commission

7 Political parties and parliaments at both EU and national levels

8 Media and general public

It is also advisable to communicate with companies and employees that might profit from an incentive scheme:

- Trade union and employers' association representatives
- Professionals and experts, especially from the field of occupational safety, occupational medicine and human resources departments

Marketing on company level

For the promotion of the economic incentive scheme special marketing material must be produced. Materials such as traditional advertisements, leaflets, letters to customers, seminars and conferences, e-mails, banners on websites, articles in newspapers and professional magazines, etc., can be deployed.

Main features:

- Description of the economic incentives scheme
- Layman's language
- Worked examples that are helpful to enable customers to understand, appreciate and evaluate the scheme
- Trained insurance staff in contact with clients (such as labour inspectors, sales force) are very important to convince companies to take part in the incentive scheme

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