European Agency for Safety and Health at Work

EUROPEAN RISK OBSERVATORY

COMPANY SURVEY FEASIBILITY STUDY

SURVEY DESIGN:

METHODOLOGY, TOPICS, IMPLEMENTATION

European Agency for Safety and Health at Work

Prepared by

Harald Bielenski and Arnold Riedmann
TNS Infratest Sozialforschung GmbH
Landsberger Str. 338
D – 80687 Muenchen
Germany

in cooperation with

Prof. Dr. Enst Kistler
Internationales Institut für Empirische Sozialökonomie (INIFES)
Haldenweg 23
D – 86391 Stadtbergen
Germany
and

The consortium of the Topic Centre Risk Observatory
Project leader: Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA), Germany

1. INTRODUCTION

1.1 The purpose of this report

The European Agency for Safety and Health at Work has launched a Topic Centre Risk Observatory (TCRO), which is run by a consortium of seven occupational safety and health (OSH) institutes from different European countries. Within the framework of the TCRO, a feasibility study has been carried out to check whether and how a company survey could be used to provide relevant data on OSH issues in Europe. One of the consortium's institutes, the Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA), has taken responsibility for producing this study.

The feasibility study is in two parts:

- a literature study, carried out by BAuA, which gives an overview of existing company surveys (TCRO Project P05-05a);
- and recommendations on survey methodology and implementation (TCRO Project P05-05b).

To complete the second part of the feasibility study, BAuA asked TNS Infratest Sozialforschung (in cooperation with INIFES) to offer its specific expertise in the field of designing, conducting and analysing company surveys – both at a national and an international level. TNS Infratest Sozialforschung acts as a sub-contractor to BAuA.

This report about survey design summarises the considerations and recommendations of TNS Infratest Sozialforschung and INIFES.

The 'Company Survey Feasibility Study' as a whole provides the Agency with the information it needs to select, specify and implement a survey of companies in Europe.

1.2 The company as source of information in OSH issues

Most of the existing data in the field of OSH is related to individual employees; for example, official data on accidents at work (data that is a by-product of the handling of such accidents within the social security system) or data based on representative surveys among employees (such as the 'Working Conditions Surveys' of the European Foundation for the Improvement of Living and Working Conditions).

A company survey is an interesting extra source of information on OSH issues. In a general way one can identify three different levels of action in the field of OSH.

- The first level comprises the setting of the general OSH regulatory framework. Key players on this level are the European Union (EU), national legislators and other national or local authorities

that establish general rules. Collective agreements on a national or a sector level can sometimes deal with OSH issues.

- The second is the company level. Here, the general legal regulations have to be put into practice (OSH management); for example, by organising work in a specific way, by using specific technology, by setting practical rules for how work is to be done, by shaping the work environment or by building an OSH infrastructure. Often companies have room for manoeuvre on how they can implement general OSH regulations. Companies can also go beyond existing OSH regulations; for example, in anticipating emerging risks and taking appropriate preventative measures. At the company level, managers, and especially those responsible for human resources, are the key players. OSH specialists and employee representatives, such as those sitting on works councils, also have a role. The interesting things to be observed at company level are (explicit or implicit) OSH policy and practice.
- The third level is that of the individual workstation or employee. Here, it is seen whether and to what extent the efforts made at the two earlier levels are successful, in the sense that risks are avoided or effective measures to prevent accidents have been implemented.

Practically, this means that the information that can be collected from a company survey (level 2) is different from the data available at the two other levels. Empirical information on level 1 can give an overview of the issues that are subject to EU and national regulation. Empirical information on level 3 usually provides insight in the cases where OSH regulation or its implementation has failed; for example, information about accidents at work or work-related diseases[1].

We strongly recommend that company surveys concentrate on those issues where the company as such (level 2) is the focus of interest, i.e. on company policy in the field of OSH and on OSH activity in practice at the company. Of course, in a company survey one can also try to collect information about individual workers or workstations (for example, the number of accidents at work, sickness rates and the number of workstations exposed to certain risks). However, this information should only be taken as a means to classify companies — for example, companies with many/few risks or companies with many/few accidents — and not as a substitute for information that can be better drawn from other sources such as national OSH registers or surveys among individuals.

Representative surveys are a widely used method of data collection. It should be noted, however, that a company survey poses a number of conceptual and methodological challenges that differ to some extent from those in surveys among individuals. This is particular true if one tries to carry out a company survey to provide cross-nationally comparable information for the Member States of the EU.

In this report, we offer some general information about survey methodology (chapter 2). In chapter 3, we present a couple of topics for which a company survey can provide unique information. In chapter 4, we make a proposal for a practical way forward.

[1] In some cases this information is collected at company level and forwarded to the OSH authorities. For example, in the German system companies are required to report accidents at work to the social security institutions ('Berufsgenossenschaften').In principle, this allows the OSH authorities to aggregate the individual data and to analyse it at a company level

2. SOME GENERAL REMARKS ON SURVEY METHODOLOGY

This chapter gives an overview of some methodological aspects that may be relevant for the design of a company survey with a focus on OSH issues. Limitations on the data collection process should be taken into account when looking at the information that the survey can be expected to provide

2.1 Sampling

In surveys of the general public, it is possible to build samples through a random walk procedure; for surveys of companies, address registers have to be used. The quality of the available address registers varies across Europe in terms of coverage (especially the sectors of activity included) and in terms of the availability and accuracy of the necessary background information (such as the sector of activity and number of employees). Existing address registers are also far from cross-nationally comparable. Special efforts will have to be made to build samples that provide the necessary quality and ensure cross-national comparability. Difficulties can be reduced if certain sectors of activity are excluded from the sample. From a sampling point of view, it might be wise, for example, to exclude the public sector. This, however, reduces the scope of the survey.

2.2 Unit of enquiry: company or establishment

A decision on the adequate unit of enquiry has to be made in the case of multi-site companies. Can the relevant information be investigated better at the company level (i.e. for all national locations of a multi-site company) or should the information be collected better at the local sites? This decision should be made against the background of what type of information is to be collected. If the Agency is interested in information about company policy with regard to OSH, then the unit of enquiry should be the company. If, however, the actual practice of OSH is the core interest of the survey, then it would be better to build a sample at the level of the local units ('establishments') where respondents are usually closer to what actually happens at the local site than headquarters personnel.

The decision on the desirable unit of enquiry has some repercussions on the sampling process since some address registers only list companies while others list establishments.

2.3 Target persons

In a company survey[2], one respondent usually answers the questionnaire for the whole company or the whole establishment. This raises a few methodological questions: Who is the most suitable respondent? How can one ensure that the questionnaire is answered by this person and not by someone less competent? How can one proceed if there is not one single person in the company with the necessary knowledge? In large companies, for example, information can be spread over several persons.

It is too early to offer definitive answers to these questions. Therefore, some of the possible alternatives only are described here.

In large companies, general or human resources managers will be the suitable persons if the questions are about general company policy on OSH. If OSH practice is the focus of the survey, it would be better to interview specialists (where they exist), or those responsible for the practical organisation of work.

If there are very heterogeneous workstations in a company, it may be necessary to interview different people; for example, one about the situation in the production side of the business (manual jobs) and another for administrative jobs. In this case, one has to decide how to handle multiple respondents in the analysis. One alternative may be to focus the questionnaire on OSH issues in specific areas and then interview the (one) person responsible for this part of the company.

In a company survey, one could opt to interview the formal employee representatives, such as the head of the works council or the health and safety committee, as well as management or official OSH specialists. We note that formal employee representation does not exist in all companies.

We do not recommend interviewing individual employees of companies in the survey. Even though it would be feasible, in principle, to interview the management, formal employee representation and individual employees in the same companies (cf. WERS or WHASS in the UK) this approach would make the organisation of data collection and the analysis much more complicated and costly. The employee perspective is covered by surveys among individuals such as the 'Working Conditions Surveys' of the European Foundation for the Improvement of Living and Working Conditions.

It is not sufficient to define the correct interviewee(s). It is also necessary to ensure that the questionnaire is answered by the correct person in the company. The interview method is of crucial relevance here. Interview techniques that involve an interviewer (whether it is face-to-face interviews at the company premises or telephone interviews) usually provide better results as far as the correct selection of the respondent is concerned than self-completion interviews (especially mail surveys) where there is no real control over who completes the questionnaire. Therefore, the involvement of an interviewer is recommended if the type of question requires a specific respondent — questions about company policy should be answered by a senior manager — while, for example, a mail survey would be an appropriate data collection methodology for questions that refer to 'hard facts'. These can be completed by anyone in the company, provided he or she has access to the requested information; for

[2] The term 'company survey' is used in this paper for easier reading although it is not yet clear whether the unit of enquiry will be the company or the establishment. The term always includes both alternatives

example, questions about the number of accidents could be answered better by an assistant in the personnel department than general management.

2.4 Data collection method

Four data collection methods are available.

- **Face-to-face interview**, i.e. an interviewer goes to the company premises and conducts an interview using a paper-and-pencil questionnaire. Alternatively, a computer-assisted personal interview (CAPI) can be conducted if the interviewers have the use of a laptop computer. Face-to-face interviews offer the broadest possibilities for questionnaire design, such as the presentation of lists or cards as visual support. They also ensure the correct selection of the right people to complete the questionnaire. However, face-to-face interviewing is likely to be the most expensive way of collecting data.

- **Telephone surveys** are often a cheaper alternative, provided the interview is not too long. Telephone interviews in most countries are conducted with computer assistance (CATI). Compared to other data collection methods, the potential for questionnaire design is restricted since the communication of questions and answers has to be made orally only. Visual help cannot be used in a telephone interview. Therefore, telephone interviewing demands short and simple questions, which – by the way – often increases the quality of the data because the researchers have to think thoroughly about what it is they want to discover.

- In **mail surveys**, a paper questionnaire is sent to the respondents for self-completion. Mail surveys are often cheaper than data collection methods involving interviewers. However, mail surveys have their own shortcomings. Response rates tend to be much lower than those achieved by face-to-face or telephone interviewing. As long as the non-responses occur randomly, this is not a problem but, if the decision to participate strongly correlates with the respondent's knowledge of the subject matter of the survey, the sample could be strongly slanted. In this case, the survey cannot provide data that is truly representative. For mail surveys, the questionnaire also has to have a clear and simple structure —with not too many or complicated filters — so that it is suitable for self-completion. There are limited ways of controlling who finally answers the questionnaires since mail questionnaires are usually addressed to the company, not to an individual person. A mail survey has its strengths if the type of information to be collected usually cannot be given spontaneously but requires some investigation in the company's files (for example, information about the number and structure of staff). The time needed to dig out such information must not be too long, because otherwise the respondents will not complete the questionnaire.

- The internet allows surveys to be carried out electronically. There are various types of **web surveys**, the main difference being in how respondents are recruited. This can be done either in a systematic way —for example, by using a pre-recruited panel or by interviewing every n^{th}

visitor of a specific website — or in a totally arbitrary manner. The quality of the survey results depends on how respondents are selected, i.e. on the quality of the sampling procedure.

Generally speaking, interviewer-based data collection methods (face-to-face or telephone) tend to be more expensive than mail or web surveys, but are of a higher quality as far as the sample is concerned. (This is because of the correct selection of the respondent, higher response rates and the lower risk of bias.) The quality of the sample is crucial if a survey is to be representative. And, results are worthless if they are not representative of the company being surveyed. Interviewer-based data collection methods (face-to-face or telephone) require a questionnaire that can be answered spontaneously, while data collection methods with self-completion questionnaires (mail or web-surveys) allow, to a certain extent, questions where respondents may have to do some rooting around to answer them properly.

Computer-assisted interview techniques (CAPI, CATI or web-survey) can provide a couple of features that increase the quality of the data. Filter mistakes can be avoided since the correct follow-up question is shown. This is helpful if the questionnaire has a complex structure, i.e. if, depending on previous answers, many questions are asked to specific sub-groups. In computer-assisted interviews, it is also possible to integrate certain consistency and plausibility checks into the programme. Inconsistent or implausible answers[3] can thus be detected during the interview itself and corrections made with the respondent.

It is also feasible to combine different interview techniques. For example, one could conduct the main interview face-to-face and leave a drop-off questionnaire for later self-completion, or recruit a sample of companies via the telephone and then conduct follow-up surveys over the Internet.

We recommend that the Agency's company survey should be a stand-alone survey and should not to strive for inclusion in an omnibus survey. Such omnibus surveys exist in some European countries, and the methodological design varies largely in terms of universe, target persons, data collection methodology and periodicity, making it hard to achieve a reasonable degree of cross-national comparability. It is not also clear whether the type of questions to be asked in the Agency's company survey would fit into the context of the available omnibus surveys of companies.

2.5 Cross-sectional survey or longitudinal panel?

Compared to a cross-sectional survey, a longitudinal panel has the advantage of being able to show developments over time for each of the units in the sample. A longitudinal panel would be an adequate data collection methodology if one wanted to find out whether a certain action — for example, nominating an OSH expert or launching an OSH information campaign at the establishment level — has an effect, such as cutting the number of occupational accidents. Undoubtedly, this is a highly interesting question, however, the implementation of a European-wide longitudinal panel at company level is an extremely demanding task. Given there are more basic problems to overcome— such as the issue of

[3] Example of an inconsistent answer: the respondent says there are 15 women out of a total staff of 10. Example for implausible answer: the respondent says there are 20 OSH specialists out of a total staff of 25, which might be correct if the company offers OSH services

address registers and the quality of statistical background information about the number and structure of companies in Europe — we recommend that the Agency's company survey should be cross-sectional.

2.6 Periodicity and organisation

The company survey should serve as a continuous source of information for the Agency's work. To this end, the survey has to be repeated from time to time. A reasonable periodicity depends, among other things, on the type of information to be collected and the design of the survey.

One approach could be to ask the same questions in every survey in order to monitor changes over time (at an aggregated level). Since changes are not likely to be dramatic in the short term, it should be sufficient to repeat such a survey every three or five years.

Another approach might be to focus each survey on different issues. In this case, a shorter periodicity might make sense. For example, questions about safety risks in production jobs could be asked one year and in office jobs the next. Or, the survey could focus on risks related to dangerous substances (for example, engineered nanoparticles or biological hazards) in the first year, on psychosocial risks in the second and on musculoskeletal disorders in the third.

One could conduct a series of surveys with a more specific focus — for example, on special issues in selected sectors of activities — in parallel or staggered over short periods of time. This approach would make sense if the investigation of a more general issue, such as health and safety risks related to work organisation, requires the development of different questionnaires for different types of companies; for example, companies with shift work, assembly lines or outdoor jobs etc. In this case, the different types of companies would have to be identified in a first screening interview, followed by more specific questionnaires for those companies that fulfil the necessary criteria.

2.7 Sample size

Sample sizes are important for two closely related reasons:

- the accuracy of the results, i.e. the margin of error
- and the potential for more detailed analysis, such as by comparing subgroups.

All figures based on representative samples are necessarily subject to a greater or lesser margin of error. Results of a representative sample survey do not provide precise figures such as, 'Exactly 29% of the companies have attitude "A" towards OSH.' Correctly speaking, the results should read, 'With a probability of 95%, the share of companies with attitude "A" towards OSH is in the interval 29% +/- 4.0%,

i.e. between 25% and 33%.'[4] The margin of error depends on the variance of the item under investigation and on the net sample size. The larger the sample, the smaller the margin of error. As a general rule, it is necessary to quadruple the sample size in order to halve the margin of error.

Practically, this means that samples should be large enough to detect actual differences between the observations. If one wants to observe the incidence of attitude 'A' towards OSH over time, and if one expects that the share of companies that show this attitude grows by 3% a year, then it would make no sense to conduct a survey with a sample of n = 1,000 every year because – as shown above – the actual change is smaller than the margin of error and therefore the survey cannot tell for sure whether there has been a change or not. There are two possible solutions to this problem: one could either increase the sample size and interview n = 4,000 companies once a year, or one could increase the time between the surveys so the expected increase would be larger (for example, 6% over a period of two years). The same considerations apply if one wants to compare different groups such as countries. If differences between countries are likely to be large, then comparably small national samples would be sufficient. If differences are small, the national sample sizes should be larger or countries will have to be summarised in country groups. In any case, sample sizes directly affect the potential for later analysis.

It is too early to recommend specific sample sizes since there are too many unanswered questions as far as the practical survey design is concerned: questionnaire, universe, periodicity and main interest for analysis.

.

2.8 Cross-national comparability

Since the company survey should give information on a European level, cross-national comparability is crucial. This means that the survey should be designed in such a way that it could be conducted successfully in each country to provide cross-nationally comparable information. This criterion has to be taken into account at all stages of the survey design: Sampling (address sources), questionnaire development (adequacy to the national situation and the translation process), fieldwork (timing and the data collection method), weighting (statistical information on the structure of the universe), and the structure of data sets and analysis. Of course, cross-national comparability means much more than the correct linguistic translation of the questionnaire.

[4] The given example is based on a net sample size of n = 1,000 interviews

3. POSSIBLE TOPICS FOR A COMPANY SURVEY

3.1 Topic list of the TCRO consortium

The main aim of a company survey is to provide the Agency with a source of quantitative information from enterprises of different sizes from different industry and service sectors in each of the Member States.

As we mentioned in chapter 1.2, a company survey can provide specific information on OSH issues. The TCRO consortium put together a comprehensive list of topics that could be investigated by a company survey. This list should help the Agency to select those topics that are of significant interest and where the extra information collected can significantly improve its knowledge base.

List of topics

The following topics could be addressed in a company survey:

Policies and practices:

- availability of extra-mural prevention services
  - which kind of provider of prevention services?
  - satisfaction with these OSH services
  - cost-benefit-relationship of OSH
- availability of intra-mural prevention services
  - description of internal services: where are they located, which kind of services are available, personal resources of theses services (qualification)
  - satisfaction with internal services
  - cost-benefit-relationship
- existence of management-systems (for example, for OSH or specific risks)
- areas of specific risk (physical/mechanical, chemical, biological, psychosocial/human/ organisational)
  - commitment to invest in OSH (in safety, health, promotion and prevention)
  - any kind of incentives to invest in general
  - incentives of external actors (for example, insurances)
  - internal incentives
  - existence of safety and health problems in the company.

Changes and challenges:

- internal changes in the past three years (in technology, in organisation)
- internal changes in the next three years (or in the next future)

- do you have a strategy to deal with OSH?
  - technological strategy for internal changes
  - organisational strategy for internal changes
  - existence of business strategies
- strategies and their consequences for the workforce
- existence of a declared culture.

Awareness and opinion:

- knowledge on European OSH regulations
- knowledge on national OSH regulations
- opinion about OSH
- influences on the workforce
- economic aspects of OSH
- drivers for investments
- improvement suggestions for OSH legislation
- improvement suggestions for OSH services
- necessity of OSH
- positive or negative attitude.

Methodological aspects

The list above is far from being a 'table of contents' for the questionnaire. It is a, more or less, systematic collection of possible issues and serves as a starting point for further discussions. It also shows the need to take into account a couple of methodological aspects at an early stage of the survey design.

To this end, we tentatively tried to classify the listed topics according to the following aspects (cf. Annex 1):

- **Unit of enquiry: company or establishment?** The overview in Annex 1 shows that while most of the listed issues can be answered at the establishment level, this is not so easy at the company level. In the case of multi-site companies, it will be much more complicated to collect information if OSH policy and practice differs between local units. One must be aware of the fact that policy and practice may vary even within one local establishment; for example, between administration and production. However, this problem becomes more serious in a multi-site company with many (different) local units. Also, knowledge and awareness of day-to-day practice is more likely to be found when interviewing respondents in the local units rather than at headquarters.

- **Type of question:** in survey research, respondents are often invited to select the appropriate answer from a list of items. If the number of items is high[5], it is helpful to use a list or a card that can be shown to the respondent. Such lists cannot be used in telephone interviewing. Often –

[5] For example, more than four items. It also depends on the length and complexity of items

though not always – it is possible to split such lists into single questions that can be answered 'yes' or 'no'. This requires a special effort to be made in designing the questionnaire. Open-ended questions do not pose a problem in the design phase, but make data collection more complicated because the respondents' answers have to be written down accurately. There would also be difficulties in the analysis phase because plain text has to be analysed, which is a special challenge in a multi-country survey. We recommend using open-ended questions only in those cases where it is absolutely indispensable.

- **Numeric information:** we strongly recommend designing a questionnaire that asks for categorical information, i.e. a yes/no question or a list of answer categories. However, in a few cases it might be necessary to collect some numeric information; for example, the number of OSH experts in an establishment, the size and structure of the workforce, the number of accidents or sickness rates. In these cases, we recommend that questionnaires ask for percentage shares rather than for absolute figures, and that they offer broad size bands as far as the percentage shares are concerned. For most purposes, this type of information will be sufficient and it will make it easier for the respondents to answer questions with rough estimates.

- **Necessity for investigations in order to answer questions correctly:** some questions, such as those about the number and structure of staff, may require research in the company's files. At least in larger firms, it is unlikely that these could be answered spontaneously. The problem can be minimised, though not totally solved, if questionnaires do not ask for precise figures but rather for the order of magnitude. For example, instead of asking how many women there are at the company, one could ask whether the percentage of women is, say, below 20% or between 20% and 40%. The latter type of information is usually sufficient for the purposes of a company survey. Figures about staff structure only offer an overview of the firm (for example, are there many/few women among staff?) and should not be used as a substitute for statistics referring to individuals such as an estimate of the share of women in the total workforce of a country or a sector. If questions that require an investigation of the company's files have to be asked, this has an impact on the choice of the suitable interviewing method, whether it is interviewer-based data collection or self-completion questionnaires.

- One of the crucial questions for a continuous survey is the **periodicity of data collection**. The idea of a continuous monitoring system suggests collecting data at least annually. This, however, may create budgetary problems. Most of the questions listed in Annex 1 do not have to be asked every year, since changes from year to year are likely to be small and therefore cannot be measured by means of a representative sample survey. Repeating the company survey every three or four years should be sufficient for meeting the information needs of the Agency. The few questions where annual monitoring may throw up some interesting information are shown in Annex 1.

- It is understood that a European-wide survey on OSH issues should provide strictly **comparable information across the countries**. If one uses a representative survey for this purpose, we recommend that identical questionnaires should be used in all countries. This will produce an

integrated data set that can be analysed on a European basis[6]. Since OSH is subject to national regulations, there may be limitations on using identical questions in all countries. This is especially the case with those questions that deal directly with the legal and organisational aspects of OSH. These may have to be worded in a way that reflects each national situation. This will require a special effort being made in designing the questionnaire. The questions that are likely to require national wording are shown in Annex 1.

The classifications with regard to the parts of Annex 1 mentioned above are still provisional. This is partly due to the fact that most of the issues listed in Annex 1 are not yet draft questions but only keywords that have to be transformed into one or several questions. Therefore, the classification depends on assumptions on how listed items can be transformed into a questionnaire.

Challenges for questionnaire design

Many of the keywords in Annex 1 are related to OSH policy and the organisational aspects of OSH (OSH management). This type of information can be collected relatively easily in a company survey. More difficult is the collection of information about specific risks. Here, the crucial point is the degree of differentiation. One can confine the questionnaire to broad abstract categories — for example, 'psychosocial issues', 'musculoskeletal disorders', or 'dangerous substances' — without going into greater detail. However, there are severe doubts that all respondents are truly aware of what exactly is meant by these keywords. Respondents in small- and medium-sized firms, for example, may be unfamiliar with OSH issues and vocabulary. Therefore, in this case, the high degree of aggregation runs the risk of lessening the validity of the answers. But even if one assumes that respondents can answer such 'aggregated' questions correctly, the information may still be of restricted value for the Agency. More detailed information will probably prove more valuable and may make the questionnaire easier to understand, provided the questions are phrased colloquially). The problem with the 'detailed' approach is the huge size of different items; for example, if one asks for specific substances that are summarised under the general term of dangerous substances. In this case, we recommend not to strive for full coverage of all possible risks but to concentrate on a few items that are of specific interest to the Agency.

Collecting information on risks in a company survey is different from collecting the same information at an individual level. At the company level, two questions always have to be asked: Does the risk exist at all in the company? And, if so: How important is it in the company (i.e. how large is the part of the workforce directly affected)? It may also be interesting to know how the company deals with these risks.

These few remarks show that developing a practical questionnaire is a task in its own right.

[6] A different approach would be to put together aggregated data from different sources in the different countries. In this case, however, cross-national comparability might be jeopardised due to different data collection methodology. Also, the possibilities for in-depth analysis are limited if the data is already aggregated at a national level

3.2 An example: emerging risks

Basic idea

The basic idea is to use existing research on emerging OSH risks as a basis for a company survey. The focus of the survey would be:

- to check whether the relevant actors at company level are aware of these emerging risks and
- whether and – if so, which – activities are done or foreseen at company level to cope with these risks.

As a starting point, we suggest taking the work on identifying emerging OSH risks carried out by the Topic Centre Research on Work and Health (TCWH) on behalf of the Agency. TCWH produced a first forecasting exercise on physical risks, publishing the results in December 2005.[7]

For the purposes of a company survey, one can either use all the top risks identified by the experts or a more or less comprehensive selection of these risks. The final decision depends on the depth of information needed on each of these risks and the corresponding risk management (i.e. the length of an appropriate questionnaire), and on the available budget.

Topics and questionnaire

By means of a study using the Delphi method among OSH experts, TCWH identified the following top emerging physical risks[8]:

- lack of physical activity
- combined exposure to musculoskeletal (MSD) risk factors and psychosocial risk factors
- complexity of technologies and work processes with complex human–system interfaces
- insufficient protection of high-risk groups against long-standing ergonomic risks
- thermal discomfort at industrial workplaces
- ultraviolet radiation
- multi-factorial risks
- vibration.

Some of these risks can easily be handled in a representative company survey while others are more difficult. The easy items are those that can be understood without much further explanation by practically all relevant players at the company level. These people are not necessarily experts in OSH. Examples of such items include: 'lack of physical activity', 'ultraviolet radiation' and 'vibration'.

[7] European Agency for Safety and Health at Work, 'Expert forecast on emerging physical risks related to occupational safety and health', Luxembourg: Office for Official Publications of the European Communities 2005

[8] Comparable forecasts were carried out

Other items are more difficult for a representative company survey because they are not self-explanatory. Items like 'combined exposure to MSD risk factors and psychosocial risk factors' or 'complexity of technologies and work processes with complex human-system interfaces" must be explained colloquially in a company survey. It is a task in its own right to develop appropriate wordings of questions for such complex risk factors. This will require close cooperation between OSH experts and experts in representative survey research. At the present stage, we are unsure whether and to what extent there will be a practical solution for the more complex items.

In any case, the list of emerging risks identified in the TCWH study can be used for selecting relevant topics for the company survey.

In a company survey one can collect the following interesting information with regard to each of the emerging risks:

- are the relevant actors at company level aware of these risks?
- are there any indications that there are workplaces in the company that are likely to be exposed to these risks? How many workplaces are likely to be affected? What are the characteristics of these workplaces?
- how does the company deal with these risks?

These three types of questions address awareness and the actual existence of risks as well as prevention activities. A combination of the answers in the later analysis will allow us to identify certain types of companies that are of interest; for example, for information campaigns:

- type A: companies where the corresponding risk exists, where the management is aware of the risk and where appropriate prevention measures are implemented;
- type B: companies where the corresponding risk exists and where the management is aware of it but where prevention measures are not (yet) implemented;
- type C: companies where the corresponding risk exists but where the management is not aware of it;
- type D: companies where the corresponding risk does not (yet) exist.

For later analysis of the data, some background information on the company, such as its sector of activity, size or workforce structure, and information about OSH policy and practice in the company as well as a number of indicators of economic performance will have to be included in the questionnaire.

As we mentioned above, the development of a questionnaire is a task in its own right. This is particularly true if the risks to be investigated are complex.

Here is a simple example. Instead of directly asking, 'Is "lack of physical activity" an emerging risk in your company?', one would be better advised to ask the following questions, step by step:

- are there any workplaces in your company where employees have to stay in a certain position (sit or stand) for a longer period of time (for example, an hour or more)?
- are these people forced to change position from time to time or is it left to them whether they change the position? Or, don't they have a chance to change position?
- does the company offer prevention schemes (for example, special gymnastic courses)?

- as far as you know, do these employees practise compensating activities in their leisure time?
- how many of the employees in your company are affected by MSD (please explain)?

The items listed above are not yet 'questionnaire questions', but they show how one could proceed in developing a questionnaire. It is understood that OSH expertise with regard to the specific risks is needed, as well as expertise in constructing standardised questionnaires. The best way to achieve this would be to establish a small working group composed of OSH and survey experts.

Target groups

Most of the emerging physical risks can occur in all types of companies, i.e. in all sectors of activity. Nevertheless, some of the risks are more likely to be found in certain sectors, less so in others. In order to increase the efficiency of a survey, it may be wise to confine the ground covered to those sectors where there is a minimum probability that the selected risks exist.

Another approach may be to select certain sectors where the relevant risks are likely to be important. In the TCWH report, call centres are mentioned as one example.

Respondents at company level should be the relevant targeted people. In the first place, this means the management – most often the owner or the managing director. In medium-sized and large companies, the human resources manager may be more appropriate. One may also consider interviewing employee representatives, such as members of works councils, or OSH specialists at company level.

4. PRACTICAL ASPECTS

4.1 The next steps towards a company survey

For the preparation of the Agency's company survey on OSH issues, we propose the following next steps.

1. Establish a small working group for the preparation of the survey. The working group should comprise OSH experts as well as experts in representative survey research at the company level.

2. The Agency – supported by the working group – makes a decision on the most important topics politically by taking into account the practical possibilities and limitations of investigating them by means of a standardised representative company survey. As a first step, it will be sufficient to prepare a detailed list of keywords or items. The list in Annex 1 could serve as a starting point for this exercise.

3. The working group works out a survey design, i.e. transforms the keywords into a draft of a practical questionnaire (using an English master version) and proposes an appropriate method for data collection. The active participation of Agency staff in this stage would be desirable. Decisions will have to be made on whether the selected topics should be investigated in one comprehensive survey — with limited possibilities to go into detail on selected topics — or whether it would be better to launch a series of surveys, each addressing only one (or few) of these topics in more detail.

4. A practical test of the questionnaire and data collection methodology using small samples in selected countries (a pilot phase). Concentrating on selected countries should help to minimise costs by avoiding the preparation of too many different language versions for the pilot phase.

5. An analysis of the pilot phase with a special focus on difficulties encountered during fieldwork. A first assessment should also be made on whether the results are useful for the Agency's work. In order to allow a more substantive analysis – at least on a tentative basis – we recommend that net sample sizes in the pilot phase should not be too small

6. Revision of the questionnaire and the survey design taking into account the lessons learned in the pilot phase.

7. Launching the main phase: — a full survey with sufficiently large samples in all EU Member States. Data collection and first analysis.

4.2 Cost estimates of a pilot study

No decisions have yet been made on the crucial parameters, such as the contents of the questionnaire, length of the interview, interview method and countries to be included in the pilot phase. Therefore only very rough and preliminary cost estimates can be made in this feasibility study.

Within a total budget of approximately 400.000 € it should be possible to:

- establish a small working group of OSH experts and experts in representative survey research for the development of a survey design (questionnaire and appropriate data collection methodology) in cooperation with the Agency;
- work out a draft English master questionnaire;
- carry out pilot interviews in six to eight different countries (including translation of questionnaires);
- analyse the pilot interviews;
- and give recommendations for the main data collection phase.

This cost estimation is based on the assumption:

- that the pilot interviews will be carried out via telephone (CATI)
- that the average interview length will be 10 – 15 minutes
- and that 150 – 200 net interviews will be carried out in each country.

It is understood that these parameters will depend finally on the methodological requirements that derive from the decisions made by the Agency as far as topics and information needs are concerned. However, it is relatively easy to adapt some of the parameters (for example, the number of pilot interviews per country and number of countries involved) so that the pilot study can be successfully carried out within the given budget.

4.3 Provisional time table for the pilot study

The pilot study can be carried out within 15 months of a contract being signed. A provisional timetable is set out below.

Month	Task
01	First meeting of expert group with Agency staff: agree on topics to be investigated
02 – 07	Development of an English master questionnaire and of an appropriate data collection methodology
08 – 09	Preparation of national versions of the questionnaire (translation and check of translations)
10 – 12	Fieldwork for pilot interviews
13	Data processing and preparation of an integrated data set and field report
14 – 15	Analysis of pilot interviews and recommendations for the main survey

ANNEX 1:

List of possible topics and methodological remarks

For information about the purpose of this list and the methodological comments on the topics, please refer to chapter 3.1 of this report.

Possible questions/keywords (without any ranking and partially overlapping)

Type of question: L = **L**ist with answer categories necessary/desirable, O = **O**pen-ended question (delivery of plain text or ex-post coding)	Company	Establishment	Type of question *)	Numeric info.n desirable?	Investigations necessary?	Annual data collection desirable?	Country-specific wording?	Remarks
Policies and Practices:								
Extra-mural prevention services/OSH services and their availability:								
Which kind of provider of prevention services?	?	X	L				X	
Satisfaction with these OSH services		X						
Cost-benefit relationship of OSH		X						
Recent change of OSH service		X						
Products/services from the OSH service (supervision of sick employees, risk analysis, registration of absenteeism, etc.)		X	L			?		
Intra-mural prevention services/OSH services and their availability:								
Description of internal services: where they are located, which kind of services are available, personal resources of theses services (qualification)	?	X	L	X[1]	X[1]		X	[1] For number and qualification of OSH staff
Satisfaction with internal services		X						
Cost-benefit-relationship		X						
Existence of OSH coordinator	?	X		?			?	
Duties of the OSH coordinator	?	X	L					

Type of question: L = **L**ist with answer categories necessary/desirable, O = **O**pen-ended question (delivery of plain text or ex-post coding)	Company	Establishment	Type of question *)	Numeric info.n desirable?	Investigations necessary?	Annual data collection desirable?	Country-specific wording?	Remarks
Existence of management systems (e.g. for OSH, specific risks)	?	X						
Which area of specific risk? (physical/mechanical; chemical; biological; psychosocial/human/organisational)		X	L	?		?		List might become very long, if one enters into details.
Commitment to invest in OSH (in safety, health, promotion, prevention)	?	X	L					
Any kind of incentives to invest in general?		X				?		Question must be specified (see below)
Incentives of external actors (e.g. insurances)		X	L?			?		
Internal incentives		X	L?			?		
Existence of safety and health problems in the company	?	X	L[3]	X[2]	X[2]	?		[2] Quantitative importance of problems (workers affected) [3] Problems must be specified
Integration of environment, quality and occupational health and safety management in the company	?	X	L?					
OSH policy	X	X						
Reasons for OSH policy (moral, legal, economic, image reasons)	X	X	L				?	
Work policies with regard to:								
workplace health promotion		X						
communication		X						
worker participation		X						
training (e.g. foreign workers with a poor knowledge of the language)		X		X[4]	X[4]			[4] Number of persons at risk
specific work situations (e.g. temporary work, night work, subcontracted work)				X[5]	X[5]	X		[5] Number of persons at risk
Globalisation, internationalisation and localisation of companies (OHS services)	X	X						Domestic/foreign ownership?
Basic principles in the company	X	?	L?					To be specified
Existence of OSH organisation in the company		X					X	Redundant with initial items?

Type of question: L = **L**ist with answer categories necessary/desirable, O = **O**pen-ended question (delivery of plain text or ex-post coding)	Company	Establishment	Type of question *)	Numeric info.n desirable?	Investigations necessary?	Annual data collection desirable?	Country-specific wording?	Remarks
Availability/existence of authorised OSH agents		X					X	Redundant with initial items?
Risk assessment done?	X	X						
Methods of risk analysis		X	L					
Usefulness of risk assessment		X						
Implementation of risk assessment		X						
Identification of emerging risks	?	X		?		?		Difficult to ask in a general way
Action plan to reduce risks		X						
Establishment of protection measures		X	L	X[6]	X[6]			[6] Number of persons at risk
Establishment of occupational medicine	?	X						
OSH and external companies/subcontractors		X						
Organisation of first aid, occupation with accidents and occupational diseases		X						
Organisation of inspections (type, frequency)		X						Might be different for different types of workplaces
Results of the analysis of accidents etc.		X		X[7]	X[7]	?		[7] Number of accidents etc.
OSH evaluation		X						
Ageing issues, e.g. age management or cooperation between generations	?	X	L?					
IT work, e.g. implementation of IT work	?	X	L?					
Flexibility practices in work organisations		X						
Gender issues	?	X						Cross-sectional issue, affects a variety of items
Diversity management		X						

Changes and Challenges:

Internal changes in the past 3 years (in technology, organisation)		X	L					Might become very demanding if asked in detail.
Internal changes in the next 3 years (or in the near future)		X	L					Might become very demanding if asked in detail.

Type of question: L = **L**ist with answer categories necessary/desirable, O = **O**pen-ended question (delivery of plain text or ex-post coding)	Company	Establishment	Type of question *)	Numeric info.n desirable?	Investigations necessary?	Annual data collection desirable?	Country-specific wording?	Remarks
Do you have a strategy to deal with:								
technological strategy for internal changes	?	X						
organisational strategy for internal changes	?	X						
existence of business strategies	?	X						
Strategies and their consequences for the workforce	?	X						
Existence of a declared culture	?	X						
Awareness and opinion:								
Knowledge of European OSH regulations	?	X	L?					
Knowledge of national OSH regulations	?	X	L?				X	
Obligations arising from the OSH legislation(s)	?	X	L?				X	
Company's compliance with the OSH legislation	?	X					X	
Improvement suggestions for OSH legislation	?	X	L,O?				X	
Improvement suggestions for OSH services	?	X	L,O?				?	
Continuation to use OSH service if services are no longer compulsory	?	X					X	
Opinion about OSH	?	X	L,O					
Image of OSH in the organisation	?	X						
Influences on the workforce	?	X						
Relation financial responsibility — preventive measures	?	X						
Necessity of OSH	?	X						
Positive or negative attitude	?	X						
Economic aspects of OSH	?	X						
Drivers for investments	?	X						Redudant with lines 16 - 19
Main sources of OSH information (OSH services, professional journals, trade association, Internet)		X	L			X	?	
Accessibility of information (do you experience obstacles to accessing information?)		X				X		
Influence of OSH on absenteeism/incapacity to work		X						
OSH motivation		X						
OSH information		X						
Instruction and training of employees		X				?		

Type of question: L = **L**ist with answer categories necessary/desirable, O = **O**pen-ended question (delivery of plain text or ex-post coding)	Company	Establishment	Type of question *)	Numeric info.n desirable?	Investigations necessary?	Annual data collection desirable?	Country-specific wording?	Remarks
Outcome of OSH policies in the company								
Health effects		X						
Productivity		X						
Quality		X						
OSH and corporate social responsibility	X	X						
Impact of IT work on well-being and productivity		X						
Background statistics								
Sector of activity		X	L					
Size (number of employees, turnover)	?	X		X	?			
Structure of staff (blue/white collar, qualification levels, gender)		X		X	X		?	
Structure of staff (blue/white collar, qualification levels, gender)		X		X	X		?	
Personnel turnover, absenteeism, sickness rate		X		?	?			
Economic performance	?	X						
Operating hours		X		?	?			Difficult to ask
Age of the company	X							
Existence of formal employee representation		X						
Single/multi site	X	X						
Domestic/foreign ownership	X	X						
Location (country, region)		X						Available through address

ANNEX 2:

Examples of possible questions

Annex 2 gives some examples of possible questions. The examples are drawn from existing company surveys and should give an idea of the type of information that can be collected at company level. The examples do not cover all topics listed in Annex 1.

The examples are drawn from the following surveys:

- 'Workplace Employee Relations Survey (WERS) 1998 (UK)'
- 'European Establishment Survey on Working Time and Work-Life-Balance (ESWT) 2004/2005'
- 'IAB-Betriebspanel (The German Establishment Panel) 2002'.

'Workplace Employee Relations Survey (WERS) 1998 (UK)':

If a health and safety issue arises at this workplace, what steps, if any, do you take to inform and consult with employees?
0. No steps
1. Blank
2. Newsletters/notice board/email
3. Communicate through management chain/cascade
4. Management-staff meetings/consult directly with workforce
5. Blank
6. Other specific answer, not codeable to 0-5
7. Other vague answer, not codeable to 0-6

Please look at this card. Have any employees of this establishment sustained any of these types of injury during working hours in the last 12 months?
1. Bone fracture
2. Amputation
3. Loss of sight
4. Loss of consciousness
5. Burn
6. Acute illness
7. Physical injury resulting from a work-related physical assault
8. Any other injury, which resulted in immediate hospitalisation for more than 24 hours
9. No injuries

If injuries:
During the last 12 months, how many employees in all have sustained any of these types of injury?

_____

In the last 12 months, have any employees suffered from any of the following illnesses, disabilities or other physical problems that were caused or made worse by their work?
1. Skin problem
2. Asthma or other lung/breathing problems
3. Stress
4. Bone, joint, muscle or limb disorder (including RSI)
5. None of these

If illness:
How many employees have been absent owing to these problems over the last 12 months?

_____

'European Establishment Survey on Working Time and Work-Life-Balance (ESWT) 2004/2005'

MM100
May I first of all check: Is the establishment at this address a single independent company or organisation with no further branch offices, production units or sales units elsewhere in {country}?
Or is it one of a number of establishments at different locations in {country} belonging to the same company or organisation?

A single independent company or organisation	(1)	go to MM102
One of a number of different establishments	(2)	go to MM101
## No answer	(3)	go to MM102

MM101
Is it the headquarters or is it a subsidiary site?

Headquarters	(1)
Subsidiary site	(2)
## No answer	(3)

MM102
Approximately how many employees are working in this establishment?

1 to 9 employees	(1)
10 to 19 employees	(2)
20 to 49 employees	(3)
50 to 249 employees	(4)
250 to 499 employees	(5)
500 or more employees	(6)
## No answer	(7)

MM103
Roughly what proportion of your employees is female?

None at all	(1)
Less than 20%	(2)
20% to less than 40%	(3)
40% to less than 60%	(4)
60% to less than 80%	(5)
80% to less than 100%	(6)
All	(7)
## No answer	(8)

MM250
Are there any employees in your establishment who are regularly required to work

a) at night between 10 pm and 6.am	(mm250a = 1)	go to FILT251
b) on Saturdays	(mm250b = 1)	go to FILT251
c) on Sundays	(mm250c = 1)	go to FILT251
## None of these	(mm250d = 1)	go to MM255
## Don't know	(mm250e = 1)	go to MM255
## No answer	(mm250f = 1)	go to MM255

FILT251 (Filter before question MM251).
If item a) is ticked in MM250: Go to MM251.
Otherwise go to FILT253

MM251
Roughly what proportion of your employees is required to work at night?

Less than 20%	(1)
20% to less than 40%	(2)
40% to less than 60%	(3)
60% to less than 80%	(4)
80% to less than 100%	(5)
All	(6)
## No answer	(7)

FILT253 (Filter before question MM253).
If item b) is ticked in MM250: Go to MM253.
Otherwise go to FILT254.

MM253
Roughly what proportion of your employees is required to work on Saturdays?

Less than 20%	(1)
20% to less than 40%	(2)
40% to less than 60%	(3)
60% to less than 80%	(4)
80% to less than 100%	(5)
All	(6)
## No answer	(7)

FILT254 (Filter before question MM254).
If item c) is ticked in MM250: Go to MM254.
Otherwise go to MM255.

MM254
And what is the rough proportion of those who are required to work on Sundays?

Less than 20%	(1)	
20% to less than 40%	(2)	
40% to less than 60%	(3)	
60% to less than 80%	(4)	
80% to less than 100%	(5)	
All	(6)	
## No answer	(7)	

MM254
And what is the rough proportion of those who are required to work on Sundays?

Programmer:
MM 255 is addressed to all respondents.

MM255 (=ER255)
Are there any employees in your establishment whose working hours change regularly due to the nature of their jobs, for example, within a shift system or a comparable working time regime?

Yes	(1)	
No	(2)	go to MM300
## No answer	(3)	go to MM300

MM256
Roughly what proportion of your employees has such changing working hours?

Less than 20%	(1)
20% to less than 40%	(2)
40% to less than 60%	(3)
60% to less than 80%	(4)
80% to less than 100%	(5)
All	(6)
## No answer	(7)

IAB-Betriebspanel (The German Establishment Panel)

2002: 47

Welche Maßnahmen zum Schutz oder zur Förderung der Gesundheit der Beschäftigten, die über die gesetzlichen Regelungen hinausgehen, werden in Ihrem Betrieb / Ihrer Dienststelle durchgeführt oder finanziell unterstützt? Sagen Sie mir bitte, was von dieser Liste zutrifft

A Krankenstandsanalysen .....( )
B Mitarbeiterbefragungen zum Gesundheitsschutz am Arbeitsplatz.....( )
C Gesprächskreise zu gesundheitlichen Problemen im Betrieb
("Gesundheitszirkel .....( )
D Kurse zum gesundheitsgerechten Verhalten.....( )
E Sonstiges, und zwar _____.....( )
F Nichts davon .....( )

In order to improve the working environment, as regards the protection of the safety and health of workers as provided for in the Treaty and successive Community strategies and action programmes concerning health and safety at the workplace, the aim of the Agency shall be to provide the Community bodies, the Member States, the social partners and those involved in the field with the technical, scientific and economic information of use in the field of safety and health at work.

European Agency for Safety and Health at Work

http://osha.europa.eu

European Agency for Safety and Health at Work