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## **“Developing and piloting an employer survey on skill needs in Europe”**

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### **Definition of required survey outcomes**

**Measurement of current and future employers' skills needs – general concepts:  
opportunities and limits**

**Approach proposed for skill needs measurement in the pilot survey**

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### ***Definition of required survey outcomes***

The planned Cedefop employer survey on skill needs in Europe should provide information on future skill needs for decision making at different levels:

- policy level,
- intermediary level,
- company level, and
- individual level.

#### **1. Information for VET modification**

In agreement with the experts of the extended group, the core group of the employer survey project suggests to bring substantial information for the modification of Vocational Education and Training (IVET as well as CVET) into the focus of survey.

This would comprise information

- for decision making on political recommendations, initiatives, investment decisions, and promotion schemes at policy level;
- for social partners and other intermediaries such as sectoral associations concerning VET strategies and members support at intermediary level;
- for the design of future HRD/HRM concepts at company level, and
- for career decisions at individual level (“guidance”).

#### **2. Additional labour market information**

The planned employer survey should be able to provide information on changing and newly emerging skill needs. While Cedefop’s forecasting exercises provide mainly labour market information on general trends in skill demand and supply, they cannot provide data on skill changes and newly emerging skills. Therefore, with regard to feeding into other Cedefop projects, the employer survey can add lacking information on skill needs and at least complementing Cedefop’s forecasting exercises. The forecasting exercises can provide highly aggregated quantitative labour market information. With less aggregated qualitative data the employer survey can provide the kind of labour market information which is necessary for a modification of Vocational Education and Training (VET).

## ***Measurement of current and future employers' skills needs general concepts: opportunities and limits***

The feasibility study concludes that the only option that allows full comparability of results across countries is a new survey at European level dedicated specifically to the identification of skill needs in enterprises. However, work on the use of the CVTS as an existing European survey should continue, and the harmonisation and adjustment of existing national surveys by Member States should be further explored in parallel. Therefore, the survey should serve primarily as an independent tool but also as a basis for a specific module to be possibly used in existing EU or national surveys by Member States.

One of the central research challenges is how to measure skill needs. This becomes even more complicated when we are thinking of *future* skill needs or future needs of occupations, skills, competences and qualifications. In this context, the project on piloting an employer survey takes into account the results of the feasibility study concerning the three approaches “vacancies”, “training” and “occupational structure” but it sheds, nevertheless, a critical light on them and scrutinises alternative approaches. In consequence, there are severe doubts that approaches outlined in the feasibility study are adequate to tackle the issue of *future* skill needs.

### *The “occupational structure” approach*

Following the approach on occupational structures has some advantages: the approach allows for a wide range of comparison throughout the EU27 and has been tested in a row of surveys both on national and European basis (see feasibility study). In general, the category “occupation” is well known and most of respondents will have an idea of what is meant. There are large data sets already available and the connection to Cedefop’s forecast exercises on skill needs is given.

Concerning future developments, however, “occupation” is a quite inflexible category. In particular, when it comes to qualitative changes, these phenomena cannot be derived from occupational statistics. In this respect, we can speak of some kind of *inertia* of the occupational concept in dealing with future skill needs. “Occupation” is a traditional and to some extent static concept. Of course the contents of occupations change over time and are modernised but this cannot be drawn from the statistical category. In this sense, the concept of occupation always lags behind future developments in the respective field of occupation.

Apart from the fact that the meaning of occupation varies substantially from one country to the other, it has to be taken into account that there is no direct link between occupations and skills: “However, occupations - even though duly classified (through the ISCO classification) - are an indirect and generally weak measure of skills and competences, which typically are of a more transversal nature.” (Feasibility study, unrevised version 2010, p. 29). More importantly, the competences and skills needed for a specific occupation change over time, involving a continual change of the links between occupations and skills. But this is, unfortunately not mirrored in the occupation category. The feasibility study concludes that the major problem of occupational structure surveys is that these are successful only to the extent that the employer can associate skill gaps with occupations. In practice, the link between occupations and skill needs is likely to be weak in both large and small firms, albeit for different reasons. In large firms, the survey will likely be answered by heads of personnel department (or equivalent). While these persons have a clear and precise view of the occupational structure of the firm, they are ill-suited to answer questions about how proficient employees are in doing their job or whether some employees have skill gaps. Such information can be better obtained from the employees’ direct supervisors and managers, who are well aware of the skills and competences of the personnel who report to them. However, it is unlikely that these managers will be asked to answer the survey. Moreover, when assessing the distance between the competences and qualifications of the existing workforce and the production or organisational needs of the firm, the employers usually do not perform such assessments in terms of occupation but in terms of the firm’s

divisions (sales department, production department, administration, etc.) weakening the link between occupations and skill gaps. In small firms, the link between occupations and skills is also weak but for different reasons because employees are unlikely to perform a precise task, but tend to perform different tasks that can be classified in different occupational categories (unrevised version 2010, p. 37-38).

A further, more practical difficulty of the occupational approach is related to the large number of existing occupations: According to the ISCO classification, there are 10 different occupations on the 1-digit level and already as many as 28 on the 2-digit level. On the 3-digit ISCO level (which is intended to be used for such a survey according to the feasibility study), there are already as many as 116 different ISCO sections. In large companies or establishments with a broad spectrum of different fields of activities, an approach by occupations could easily end up with an extremely lengthy and repetitive questionnaire. But even if this problem could be solved in a reasonably satisfactory way by restricting the questionnaire to the set of quantitatively most important occupations in the establishment, the large diversity of different occupations would require an enormously large number of employer interviews in order to get to a sufficiently high number of cases for each of the occupations, especially if the 2-digit or even the 3-digit level would be chosen.

#### *The “vacancies” approach*

As the feasibility study points out (unrevised version 2010, p. 31), “vacancies” provide timely information on employer skill needs and are the most immediate way to assess the **current** needs of enterprises. In addition, government policy and regulatory changes are likely to have a direct impact on the type of vacancies to be filled. To separate the skill needs from the business cycle impact, surveys generally focus on hard-to-fill vacancies, which are more precise indicators of those areas where the mismatch between employer skill demands and supply is highest. Nevertheless, hard-to-fill vacancies alone merely point to possible mismatches in the labour market and not necessarily to the demand for skills. “Vacancies” in this respect is a doubtful indicator for **future** skill needs. But what is the most obvious reason for vacancies (and this is also valid for hard-to-fill vacancies): Massive fluctuation due to low wages or/and poor working conditions. Skill needs are not really a major issue of importance here. The question is also how “vacancies” are categorised on the basis of the respondents’ answers. And here again the category “occupation” comes into play with all its limitations mentioned above.

Another problem of the vacancies approach is that it is very susceptible to general business fluctuation. Temporary economic crises within a branch influence the results obtained from the vacancies approach considerably and can easily lead to wrong forecasts. An example is the crisis of the German engineering sector in the mid-1990s which led to a situation with only very few vacancies for occupations like engineers or technicians in this sector. As a result, students were deterred from these professions, leading to pronounced skill shortages a few years afterwards when the sector had overcome the crisis.

According to the feasibility study (unrevised version 2010, p. 32), two approaches can be adopted to assess enterprise vacancies:

(a) the first approach aims to investigate solely the current vacancies (i.e. vacancies open at the time of the survey/interview). This approach has limitations because it is unable to anticipate future skill needs through future vacancies. Nevertheless, it has the benefit of being completely objective: employers are not asked to make a judgement, but merely to state their current needs. Examples of this approach are the employer surveys conducted in the UK, such as the National Employer Skills Survey for England (NESS).

(b) the second approach aims to investigate both current and future needs by asking employers about any future vacancies they plan to advertise. Generally the time horizon of future vacancies is restricted to between a-few-weeks and a-year-maximum because employers cannot give accurate forecasts for periods longer than one year. Compared with the former, this approach has the advantage of enabling to investigate future skill needs, however, by doing so, it introduces a certain degree of subjectivism, given that it requires employers to formulate expectations about the future. Examples of this approach are the excelsior information system in Italy and the panel enterprises forecasts in France.

We do not really see a problem in employers formulating expectations about the future. When we are dealing with **future** skill needs this formulation of expectation and also speculation about the future is even needed to some extent. What is more critical, is the assumption that future skill needs are not really advertised in job advertisements. Other channels are used to fill vacancies for jobs including innovative tasks (and in this sense future skill needs). Even if there are innovative and/or “new” elements in job advertisements, the difficulty is to extract these i.e. to separate them from the already existing, “traditional” elements of a job, what brings us back to the occupation concept. The main drawback of assessing skill needs through information on vacancies is that they are not able to indicate any structural change in the job composition.

#### *The “training” approach*

According to the feasibility study (unrevised version 2010, p. 38), the third approach to enterprise skill needs investigates the personnel training policies implemented by companies. Like vacancy surveys, training surveys can focus on employees already working in the enterprise or on newly-recruited employees. Nevertheless, this is only one side of the coin. There are other specifications as well. It is, for example, difficult to distinguish between the need for new skills and the upgrading of existing skills. The presence of a high training intensity in a sector as such is not a clear indication of the need to acquire new skills. It could simply be an indicator for the obligation to regularly update skills due to existing legislation.

Existing training surveys usually ask for the type of training, the reasons for training, resources, target groups and satisfaction with the training. But instead of asking for the who and how, these surveys should ask *what* has been trained. However, contents of training are usually omitted and with that the opportunity to establish a substantial link to skills. Admittedly, “training” is a quite interesting indicator for future skill needs and the “training” approach a good supplement. But if we want to know about the real content of the training we also have to bring it into relationship with the changed/new skill/competence/occupation/qualification. This seems to be extremely difficult and ambitious. To go for a training approach seems to be too difficult. If a training approach should be pursued it might be the best solution to modify and extend the CVTS.

The experts of the extended group shared the doubts of the core group to follow for the survey an approach on either occupational structure, vacancies or training merely. The approaches have been assessed by their potential to display “skills” and “future skill needs” and by the relevance of the employers’ voice concerning the respective category.

### ***Approach proposed for skill needs measurement in the pilot survey***

“Employers are known to find it difficult to think in terms of skills as it is generally simpler for them to think in terms of production processes, tasks to be executed and objectives to achieve” (Feasibility study, unrevised version 2010, p. 101). Given this quote from the feasibility study, it has to be taken into account whether a task-oriented approach might be of help in tackling the issue of future skill needs.

Occupational structure(s) can be regarded as a paradigm which does not sufficiently illustrate the potential of the workforce. In consequence, an approach is needed that transcends occupational nomenclatures. Unfortunately, this brings the planned employer survey to a first dilemma: due to reasons of comparability and linkage to existing surveys, a close link to occupational nomenclatures has to be kept. So in the design of the survey a way has to be found to integrate both links to the ISCO coding structure and to go beyond. In question are also the way and the terms to be used to generate “more qualitative information” to complement the forecast exercise. This is closely connected to the question which depth of information is needed.

An approach oriented towards tasks seems to have several advantages. First of all it seems to be very near to the “world of work” and the employers’ perspective: “Employers are known to find it difficult to think in terms of skills as it is generally simpler for them to think in terms of production processes, tasks to be executed and objectives to achieve.” (Employer surveys on skill needs in Europe. Results of a feasibility study. Unrevised edition 12/2/2010, p. 101). Secondly, a certain task relation at least at the start of the interviews seems to be useful to achieve a sound basis and a substantial input from employers. Thirdly, apart from the assumption that a task approach seems to be the easiest one for employers in terms of terminology, there are other reasons “to start” with tasks: In contrast to ‘skills’ the term (and translation of) ‘tasks’ is absolutely clear. For “skills” however, in many languages there is simply no direct equivalent which can be used. That means a direct conceptual transfer to the questionnaires for all countries would not be possible anyway.

There is a variety of task and skill classifications which can be used within the framework of the pilot survey. These range from “core tasks” to very specific “occupation-specific tasks” resp. from “generic skills” to “sector-specific skills” and “occupation-specific skills”. In consequence and as a result, a more comprehensive definition of skills seems to be needed to tackle the issue of future skill needs.

Thinking about different task and skill classifications has implications for the design of the survey and the depth of information aimed at. In the discussion on “generic vs. specific skills” it becomes clear in the case of generic skills one matrix could be used for all occupations and sectors, but the survey is then in danger to arrive at commonplaces such as “more ICT skills” are needed. Very specific skill classifications per sector or/and per occupation, on the other hand, lead to voluminous questionnaires and are therefore not practical.

Tackling the issue of future skill needs it has to be considered for the design of the survey to put employers into a situation or scenario which makes them think about the future. Another question is the time horizon to be aimed at with the questions on future skill needs. The experts’ opinions range from six months to three years but it has also been pointed out that usually companies do not have a HRD plan which covers terms of more than two years.

If past, current, and future skills should be included in the survey, is also subject to discussion. Nevertheless, it has to be kept in mind that the focus of the survey should be on future skill needs and not on a historical assessment of developments so far. If all of these aspects are included in the survey, there might be too much focus on the past instead on the future.

The integration of the category of occupations is a challenge for the (pilot) survey. Some experts think that the question on occupations in the company or establishment has to be left open because employers do not know about the structure of the ISCO code. So employers need job descriptions and the open questions have then to be post-coded. Furthermore, the same occupations include different skills in different countries. First results of the new Commission initiative “ESCO (European Skills, Competencies and Occupations)”, aiming at a multilingual dictionary of occupations and skills (mapping of national and sectoral taxonomies) should be taken into account (this includes the DISCO database on occupations and skills), if possible.

The challenge for the survey is to provide the information which the Commission requires - qualitative data at a level and in a form which approximates to skills and in a unit of measurement which can ‘capture’ new skills – but in a methodological framework which allows the results to be superimposed on to the ISCO coding structure. The problem: If we want to have in-depth information, it has to be created, which means a certain time and effort.

The following table depicts the possible scope of the pilot survey ranging from very general points of departure to very specific (sector and/or occupation) ones:

Item/category/ variable	Range of definitions		
	„Tasks“	„Core tasks“ Microcensus	„Sector-specific tasks“
„Skills“	„Generic skills“ PIAAC, NESS	„Sector-specific skills“ DG Sector studies	„Occupation specific Skills“ (O*Net)
„Occupation“	ISCO 1-digit	ISCO 2-digit	ISCO 3-digit
?			

Two options for the pilot survey are possible. The final selection is dependent on the depth of information aimed at.

One option is to follow a rather general approach on tasks and skills and to remain on the level of broad occupational groups within the ISCO coding structure. The selection of sectors and occupations could take place in the same way as for the skills audit mentioned below. The recording of task and skills, however, remains at a rather general level. The option has potential to support a kind of skills gap analysis and to identify fields wherein problems could occur but it is not able to provide further information on the nature and content of future skill needs apart from general assumptions.

Another, much more qualitative-oriented, option is the “skills audit”. Here each selected NACE 2-digit subsection has a corresponding separate matrix for each of the broad occupations, such as managers, professionals, associate professionals, craft or skilled manual workers, semi-skilled manual workers, operatives, administrative workers, clerical workers, unskilled workers and so on. Each of these broad occupation matrices is composed of five columns with the respective headings of occupation; core tasks; occupation-specific tasks; degree of difficulty in sourcing these skills and new tasks.

At the end of the list of relevant occupations in the occupation column, there is a category called ‘other occupations’. The inclusion of this category is to provide the employer with the opportunity to

list new jobs which are so different from the traditional occupation categories that it seems necessary to identify them separately. The employer will be invited to list these new jobs in the form of “job titles”.

Given the assumption that some kind of selection of occupational groups and sectors is needed in the context of the survey planned, the “skills audit” is one option. The problem of this option lies in the time-consuming preparation of task and skill classifications for each selected occupation or (if this is not done) in the post-coding of the information given. The skills audit would in fact produce much more qualitative in-depth information than the other option but would also include the challenge of analysis of the information (if post-coded).

### ***Selection of occupational groups and unit of analysis***

The results of the survey have to cover basically three central dimensions: 1. the tasks and/or the skills required, 2. the scope of the sectors of activity of the surveyed companies and 3. the occupations and/or qualification level of the employees. Two central questions have to be considered:

- Which level of detail is necessary for analysis of these three dimensions?
- Are there possibilities of selection?

The two main restrictions that have to be kept in mind, are the number and the length of the interviews. In the pilot there will probably be a limitation to 1000 interviews per country and an interview length of 20 or 25 minutes. Later studies to be carried out on the basis of the survey manual might be less restricted in terms of sample size and interview length, but the levels of detail should not increase in a way that the survey would become unfeasible.

Regarding the level of detail it seems desirable to refer to NACE 2-digit level on the dimension of sectors of activity and on ISCO88 3-digit level on the dimension of occupations.

### ***All sectors or concentration on certain sectors?***

Depending on the focus of the survey it has to be decided by Cedefop whether the survey should cover the whole economy or not. For practical reasons, we recommend to at least to exclude the sectors “private households” and “extraterritorial organisations” in the pilot. The information about the NACE code is available from the address sources, so it is possible to preselect specific sectors in advance. If there will be a selection, the following criteria could be applied:

- the size of the sector,
- major or notable changes in the sector in the near past (this might be mostly relevant for future skills),
- an increase of employees in the sector in the past three years.

A selection should depict a certain diversity, e.g. the public and private sectors, in order to cover differences in tasks and skill needs between sectors. A further aspect on the dimension “company characteristics” is the size. Skill requirements might differ between small and large companies. One thesis could be, that in smaller companies there is a stronger requirement of more general skills and in larger companies the work is based on stronger division of labour so there are more specialised skills needed. Therefore it is important to have enough interviews from companies of different sizes.

Depending on informational depth on tasks and skills we have to choose the adequate target person for the interview. If we cover a generic level like in NESS, we could talk with the company owner, the managing director or the HR manager. If we want to ask for occupation-specific tasks and/or skills like in the skills audit, we might have to talk alternatively (or additionally?) to the line manager.

### ***Occupational groups***

The second dimension of analysis are the occupational groups. The restriction is again the length of the interview. There are two options for the question about tasks and skills of the employee groups: 1. A very few and general questions could be asked to all or many occupational groups in the company (8 core occupational groups per sector in average). 2. If more detailed aspects are to be asked, a selection of one or max. two occupational groups will be inevitable.

Our recommendation is to select 1-2 occupational groups and collect more detailed information about tasks and skills, in order to get significant and new information. If we choose this way, we will have to decide how to select the occupational groups in the interview. There might be the following 3 possibilities:

1. To choose the group, which is mostly affected by changes in the company. The chance is to get more information about new developments. But this method could lead to a wrong picture in the sum, because we do not know the reasons for changes in the companies and should ask for them (costs interview time).
2. To choose the group with the largest number of employees: the disadvantage is that by this way certain occupational groups may not be selected, e.g. administrative employees in the production sector.
3. A random selection would be a clear way. The pre-condition is an information about the occupational structure, which first has to be collected. But it could happen that the respondent would like to give the information on other groups which seem to be interesting to him or her.

If we follow the idea to concentrate on the core occupational groups (8 in average) per sector, this will be a manageable problem and a random selection might be the best way.

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