EVALUATING AND VALIDATING OCCUPATIONAL SKILLS PROFILES FOR GREEN AND ICT SKILLS

Workshop with practitioners

23-24 April 2015, Hotel president, Prague

Workshop summary

The key objective of the workshop wasto assess the structure and the quality of the occupational skills profiles (OSPs) with a special focus on the skills needed in ICT and "Green" jobs. The OSPs have been developed on behalf of Cedefop by the Education Policy Centre, Charles University, as part of a larger project (led by the Warwick Institute for Employment Resaerch (IER)) on anticipation of changing skill supply and demand in Europe. A key aim is to extend the information provided on potential skill needs beyond broad levels of initial formal educations qualifications.[1] The current OSPs are largely based on data from the US O*NET system. and other (mostly national) sources. As part of the most recent developments this has been further enriched by exploitation of data from the OECD's PIAAC survey, building on work conducted by Research Centre for Education and the Labour Market in Maastricht (ROA).

This event provided, for the first time, an opportunity to confront the OSPs with the views of external experts working on comparable studies or using different sets of occupational profiles in practice.

The assessment of the structure, usability and quality of the results is important for Cedefop, in particular in relation to the new responsibilities for the European Union Skills Panorama (EUSP) and involvement in the European system for classifying Skills, Competences, Qualifications and Occupations (ESCO). OSPs are naturally intended to be used to support these activities. Therefore a clear understanding of how far the OSPs add value to existing Labour Market Information (LMI) on skills and related issues at a pan-European level is considered as crucial. The workshop aimed to shed light on how much the results reflect reality and whether (or not) the OSPs can be used to inform policy makers and other labour market actors.

The two day workshop focussed on evaluating and validating the current set of OSPs, focussing upon Green and ICT jobs. The objective was to try to answer to the following key questions:

1 – What are the key elements of an ideal *Occupational Skills Profile (OSP)*?

2 – How far are our current OSPs from the ideal?

3 – How well are the current OSPs capturing the reality of changing skill requirements in ICT and Green jobs?

4 – What are the possible strengths and weaknesses of these results and underlying approach?

[1] Current forecasts are providing information on three broad formal qualification levels (low, medium, high).

Fourteen external experts accepted the invitation to participate at the event. The workshop was facilitated by Cedefop experts and the researchers involved in the project (including representatives of the EPC as well as the Warwick Institute for Employment Research (IER) and the National Training Fund, Prague (NTF) who were involved in evaluating the OSPs. The even combined formal presentations with interactive methods of working. The latter aimed at involving experts to share their views and opinions on the results presented (small group exercises, focussed discussions, consensus workshop methods, etc). Draft report(s) as well as Excel workbooks with final results were circulated in advance. Participating experts were highly involved and contributed considerably to the evaluation process and possible further steering of Cedefop's work.

Outcomes of Session 1

After the introduction to the workshop, the discussion started with the idea that each participant may have his/her own understanding of skills profiles, their ideal structure and information provided. The first session therefore aimed at unifying the understanding of, and obtaining a common view on, the substance of occupational profiles (in general). The consensus workshop method was used to discuss the questions: "What are the key elements of an ideal occupational profile?" The experts agreed on six main characteristics (clusters) that ideal an occupational profile has to consist of.

The ideal occupational profile has to include the "content model" which represents the key factual information on skills, knowledge, competence, experience and training required. Ideally, this should be based on a clear and generally accepted "taxonomy". As occupational profiles are to serve different purposes the "user orientation" (or requirement) was also considered as important factor. The user requirement is closely related to "level of detail" or "quantification" as different users may prefer different details or type of information. "Design requirements" are an important building block of any occupational profile. In general it is expected that occupational profiles act as the bridge between the world of education and work, (for more details see Annex I)

Outcomes of Sessions 2 and 3

Sessions 2 and 3 focussed on the main presentations of the current work done in relation to the OSP. The first presentation by Martin Lepic (EPC) focussed on a SWOT analysis of the current stage of development of the OSPs. He considered the fact that OSPs allow for comparison of key dimensions across countries, sectors and occupations as the main strength of the approach. On the other hand the main weaknesses and threats are related to the reliance on use of US O*NET data (which may not always be relevant in the EU contex). The expected benefits of using the OECD PIAAC data to inform current OSP dimensions are mixed. Although these data contribute significantly to bringing results closer to EU reality (including the possibility for developing more country specific results) they are more suitable for development of new dimensions rather than a substitute for the current set of information based on O*NET.. The use of standardised taxonomies can be considered as an opportunity for further development (by applying new data sets) as well as enabling the OSPs to in Session 2 by Tereza Vavrinova and Martina Koutna (NTF) focussed on validation of the OSPs for the IT sector. Their validation exercise was designed to answer three questions: 1) Can the OSPs be used to analyse individual occupations and sectors of economy? 2) How useful are the OSPs to compare trends in skills requirements across countries? 3) Are the OSPs helpful in predicting future skill needs? The answers to these questions are not straightforward. They concluded that OSPs the

provide a unique and useful set of information; however their usability is limited by the lack of available data sets.

The third presentation of this session by Terence Hogarth focussed on the validation exercise within jobs in Green sector. The starting point of his analysis was that the skill content of the jobs is driven mainly by policies to reduce greenhouse emissions. In his presentation he mainly focussed on the comparison between skills required in energy sector and all other sectors. He concluded that there was little difference between the different dimensions between these two sectors. The main differences were in the practical skills (more being required in the level and importance in energy sector) or language skills (less required in the energy sector).

In session 3 the research team (Jan Koucky, Martin Lepic (EPC) and Jim Allen (ROA)) were asked to present more details on the structure and design of the OSPs workbooks. Although the presentations clarified the content of the workbooks, the need to rethink the ways of presenting the results and redesign the final outputs was stressed. Ideally, it would be desirable if the way of presenting the results (including the level of detail) could vary depending on the users' requirements and the level of their expertise.

Outcomes of Session 4 (as presented in Session 5)

In the last session of the first day the participants were split into two parallel groups; one focussing on ICT and the second focussing on green jobs. The main aim was to discuss with external experts their views and opinions on the structure and quality of OSPs results. The discussion was based on the presentations and confrontation of the OSPs with the experience and expertise of invited experts.

The main conclusion of the discussion group on the ICT sector was that current OSPs are considered a good and well-founded product, although the final usability is in some ways not clear. The current OSPs were a good instrument that uses the top-down approach and the big pallet (almost all) of available data to produce different dimension of skills, knowledge and competence. On the other hand the size of the exercise makes the results quite difficult to understand for different groups of users. At the same time the reliance on two digit ISCO levels, and more overarching terms used, may leave some important knowledge, skills and competences (KSC) unobserved.

Understanding of the results (transition mechanism) for different users was considered as the main shortcoming of the current results. The discussion was therefore driven towards proposals about how to complement OSP top down approach with a more bottom up approach. Several approaches including sectoral/occupational skills councils, or vacancy analysis were discussed. Such methods were considered as relatively easy to use, however the outcomes might be only partial and some of these methods might require significant effort or time. Moreover it was indicated that there might be no single method fitting the needs of all other occupations.

The group focussing on green jobs concluded that the OSPs provide relevant information for various target groups (e.g. policy makers and career guidance practitioners); however there is a need to provide guidance to the users on how to make best use and how to interpret the results. Moreover the fact that the green occupations are not clearly defined in ISCO, (which forms the basis for OSPs), makes straightforward selection of particular occupations difficult. The group also agreed that the top-down approach currently used could be well complemented by a more bottom-up approach

(e.g. case studies, expert groups, etc.). Although more detailed results would be appreciated (in particular for occupations), at the same time the wealth of indicators covered makes it difficult to navigate to interesting results. Therefore more summary information would be useful. The system should also allow a variety of comparisons to better illustrate the differences in skill requirements.

To assess the quality of results for green jobs was rather difficult as in the current classifications the green jobs overlap with non-green jobs (e.g. not all jobs in energy sector are green). It was suggested that in the future a 'key word' approach could be used to better identify green skills and jobs in the dataset as these are concentrated in certain occupations and sectors. The set of characteristics on work values and occupational interests (as borrowed from O*NET) was found to be very relevant for green jobs.

Outcomes of Session 6

This session presented methods which may eventually contribute to solve a few of the issues indicated during the discussions. The first presentation of this session by ROA focussed on introducing the method of small area estimates to provide complementary information to OSPs. This method would bring more details into the currently applied approach, using multilevel estimations on PIAAC data. Using such approach would allow (using other data sets, for the example LFS) the researchers to get more precise and reliable indicators on skills proficiency in detailed occupations. An example of using this approach in Netherlands was presented. The second presentation of this session was by 3s (a Vienna-based consulting and research company). It focussed on the use of automated vacancy analysis exploiting semantic processing technologies to enrich the information with current and publicly available data. This presentation was complemented by Jakub Zavrel (Textkernel) who presented concrete examples of such an exercise.

Outcomes of Session 7

In the final discussion and evaluation of the OSPs participants were asked to identify key strengths and weaknesses of the approach and results produced (see Annex II). The strengths were mainly related to the methodology and type of data used. The uniqueness of the exercise was highly appreciated. On the other hand the way the results are currently presented, reliance on US data, as well as inability to produce more detailed occupational profiles (due to data limitations) were considered as key weaknesses. However, there was an agreement that weaknesses identified should be understood also as the main opportunities to achieve well-grounded results of general interest.

The final validation exercise was aimed at providing a reflection of the whole one and a half day discussion summarised into two questions: How well do the Cedefop OSPs reflect the reality of ICT/Green occupations; and, How useful do you find the information provided by current Cedefop OSPs? Participants were asked to express their opinion by using sticky dots on two large targets where the central point reflected the most positive answer to each question. After awarding each "hit" with the mark when 5 presented the most positive and 1 most negative answer the final mark was 3 for each of these questions.

Next steps:

Based on the outcomes of the workshop, Cedefop together with the research team will:

- Finalise and distribute all reports

- Produce a report with realistic examples of “how to read the OSPs results”;
- Reconsider the name Occupational Skills Profiles;
- Reconsider the “forecasting element” of OSPs;
- Assess the ability to aggregate occupations and sectors;
- Examine possibilities for introducing lower levels of disaggregation;
- Work on ways to present the results in more understandable way;
- Examine usability of the results in the EU Skills Panorama or Cedefop forecast online platform;
- Undertake cost-benefits analysis of further work on OSPs development.

Annex I: Consensual agreement on the question:

What are the key elements of an ideal occupation profile?

Content model	Design Requirements	Taxonomy	User orientation	Quantification	Level of detail
Skills required	Geographical focus	Scientific certification	Usable by target audience	Quantification of indicators	Satisfactory level of detail
Experience required + knowledge	Integrated in a broader LMIS	Mobility between jobs	User dependent	Trends development	Detailed breakdown
Professional training certificates	Modular + adaptable	Transferable skills	Users?	What employers are asking for…	High level of detail
Understand technical & generic skill needs	Standardisation of language / description	Standardised system of classifying jobs	How to get your skills recognised for the OSP		
Provide several levels of specificity	Regulation skills/ competence				
Field of knowledge	Machine readable				
Nature of skills required	Identified key points				
Experience required (years)	Non-bureaucratic/ non-centralistic				
Where to get those skills	Future proof				
Working conditions					
Education level + field required					
Core work process core competence, tools					
Personal abilities					
Granularity skills experience background					

Annex II: Strengths and weaknesses of current OSPs

Strengths of current OSPs	Weaknesses of current OSPs
• Country coverage	• Level of detail (occupations and skills)
• Occupational coverage (standardised to ISCO)	• Static forecast
• Elaborated methodology & overview	• Format of presentation for various target groups
• Predictive element	• Reliance on US data
• Characteristics coverage	• Name OSP is misleading
• "All" available data sources (surveys) are included	• Documentation/interpretation (relevance) of indicators is missing
• First steps to EU reference	• Semantic scales use
• Format suitable for experts	• Need to reflect more LM needs
• Potential to be linked to other sources/ taxonomies (ESCO)	• Difficult to capture unconventional (cross sectoral) or rapidly changing areas
• Quantitative	• Summary (key messages) missing
	• Partly difficult to update