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State of play of the revamp of the ESCO skills clusters

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Purpose of this document

This document provides an overview of the state of play of the revamp of the ESCO skills pillar following the expert consultation and testing of the draft skills hierarchy, as presented to the Member States Working Group on ESCO in March 2025 ([1]). It covers the main findings of the expert testing and details improvements that will be implemented within the next major version of ESCO.

1. Introduction

On the 2nd of July 2025 a workshop on the revised structure of the ESCO skills pillar (so called 'skills clusters') took place following the end of the expert's consultation. The workshop was held online and was attended by:

- PES Denmark
- PES Sweeden
- University of Olomouc
- The European Commission Directorate-General for Human Resources (DG HR)
- Lightcast
- VDAB (PES Belgium)

At the beginning of the workshop, the ESCO Secretariat presented the general lines of the skills clusters project ([2]), which aims to develop a sector-based classification of skills that better suits the needs of ESCO implementers. Unlike the existing ESCO skills pillar focused on skill transferability, this new structure is designed to be industry-based to facilitate an easier browsing of the classification, support job matching and enable skill recommendation functionalities.

([1]) MSWG March 2025 Note on updates to the skills pillar v.1 final.pdf

([2]) For more information and background on the project, see ESCO MSWG 080324 skills clusters.pdf and https://esco.ec.europa.eu/system/files/2025-04/ESCO%20MSWG%20140325%20skills%20clusters.pdf.

2. Feedback received from organisations that tested the alternative hierarchy

Danish Public Employment Service (PES DA)

Representatives from PES DA highlighted that labour market data is multi-dimensional and constantly changing, making it difficult to capture ongoing and future trends with traditional, often rigid frameworks. This is why the experts welcomed the move towards co-occurrence-based clustering, which they believe allows for more meaningful, flexible and practical representations of skills data. PES DA supports the combination of knowledge and skills into a single structure, arguing that this would better reflect the labour market and make the taxonomy more useful for both practitioners and data analysts. The experts proposed the development of 10 to 20 broad, intuitive "*types of work*" categories (such as IT, care, construction, or personal skills) to help users navigate the taxonomy more easily and to support clearer data presentation.

Swedish Public Employment Service (PES SE)

The Swedish Public Employment Service (PES SE) presented a detailed use case in which an occupational profile from the Swedish national classification was manually mapped to skills from the alternative ESCO clustering project.

PES SE raised concerns about the way skills are displayed in the hierarchy, particularly when subcategories appear before main categories, which can make interpretation unclear and potentially confusing for users. The experts noted that this issue can hinder the practical use of the taxonomy, especially for those who are not familiar with its structure. PES SE also highlighted the importance of defining appropriate levels of granularity in the taxonomy, suggesting that more work is needed to ensure that the structure is both logical and user-friendly.

University of Olomouc

Representatives from the University of Olomouc shared insights from their work on the Horizon-funded Mega Skills project ([3]), which 'aims to bridge the gap between education and the labour market through the research and design of an innovative and affordable game-based methodology for training and evaluating soft skills'.

The pilot consists of mapping learning outcomes of bachelor's-level HR courses to ESCO and assess results according to six evaluation criteria: relevance, accessibility, clarity, coherence, support for modularity, and trend awareness. All criteria were weighted equally in the analysis. The University of Olomouc team found good alignment between the ESCO

([3]) https://www.megaskills.eu/

taxonomy and core HR tasks, and praised the modularity of the approach. However, they also identified issues, such as fragmented clusters and limited references to AI-related skills, which they felt were increasingly important in the modern labour market.

During the discussion, the University of Olomouc representatives emphasized the importance of including transversal and civic skills, not just job-related skills, in the taxonomy. They argued that fostering civic skills is essential for a healthy democratic society and that ESCO has the potential to support this broader goal.

European Commission, Directorate-General for Human Resources (DG HR)

Representatives from DG HR explained that the Commission is implementing ESCO in a wide range of tools for selection and recruitment, as part of the Human Resource Transformation (HRT) initiative. As part of the preliminary testing, the Commission is matching thousands of free-text entries from job descriptions, vacancies, and CVs to ESCO concepts at various levels of detail. The goal is to find the right balance between being specific enough for accurate matching and general enough for useful reporting. During this work, DG HR identified some missing concepts in the current ESCO version that could be added in future updates. They also stressed the importance of not only organising concepts in a vertical hierarchy but also grouping related concepts clearly on the same level. They noted that this type of semantic organisation makes taxonomies easier to use and understand and is often overlooked in taxonomy design.

Lightcast

Lightcast's taxonomy experts provided feedback based on their experience in labour market intelligence using real-time vacancy data. They supported the clustering approach for large-scale analysis but suggested reducing the hierarchy to two or three levels for practical use, as deeper hierarchies can become harder to use. Lightcast also noted gaps in the taxonomy related to emerging areas such as green jobs, digital platforms, and new technologies, and called for greater transparency regarding the models and methodologies used to build the alternative hierarchy. Lightcast highlighted the importance of using real-world language from job postings, rather than relying solely on formal or institutional terminology. They pointed out that ESCO sometimes uses language that is more reflective of HR departments or legal frameworks, rather than the way skills are described in the labour market. Lightcast also raised concerns about potential bias in the data, noting that the distribution of postings by language, sector, or occupation could affect the final hierarchy.

PES Belgium (NL) (VDAB)

The final intervention came from representatives from VDAB, who expressed interest in the new ESCO clustering, particularly for comparing taxonomies and improving data

quality. They limited their use of ESCO to level 3, finding lower levels too detailed for their needs. While they viewed ESCO's hierarchy as more theoretical, they found the clustering approach easier to use and overall positive.

VDAB suggested that related clusters (such as production, product knowledge, and machinery) should be grouped more closely to improve usability. They also highlighted the need for clearer definitions and allocation rules for clusters, and noted that inconsistencies in the structure (such as clusters containing both sub-clusters and loose elements) can make navigation challenging. VDAB pointed out that some clusters are very large while others are very small, and suggested setting upper and lower limits on cluster size to maintain consistency.

4. Closing reflections and next steps

The workshop provided valuable insights that will directly inform the restructuring of the skills pillar in the next major version of ESCO. The second instalment of the Skills Clusters layer will be released as part of this ESCO update, incorporating the stakeholders' feedback and addressing key structural challenges.

Although Skills Clusters were originally designed as a rapid, implementer-oriented solution, it has become evident that their ongoing development must be carefully aligned with the broader strategic objectives of maintaining and updating ESCO. The scope of the restructuring planned with the next major version, extends beyond the initial constraints set for Skills Clusters, allowing for more comprehensive changes such as renaming concepts, revising definitions, creation of mid-level groups, correction of hierarchical relations, etc.

Moving forward, the integration of Skills Clusters into the Skills Pillar will be more deliberate and strategic, ensuring that they serve their intended purpose without compromising the integrity or progress of the ESCO framework.

To ensure transparency and alignment with stakeholder expectations, the ESCO Secretariat will take the following concrete steps:

Feedback Implementation:

- General soft skills: A recurring theme in the feedback, these will be prioritised in the next ESCO update.
- Semantic grouping of sibling categories: This will be explored further to improve usability and clarity.
- Granularity and sector representation: Feedback on uneven granularity and sectoral balance will inform the restructuring of clusters.

Key working points in the short term:

- Renaming and redefining concepts: Previously restricted actions for the Skills Clusters project are now being applied in the new skills pillar including concept renaming, definition updates, and deprecations.
- Integration of co-occurrence data to support practical applications such as recommender systems and upskilling pathways.
- Competence-based restructuring: The Skills Pillar is being restructured to reflect a broader competence-based approach, potentially leading to a renaming of the pillar.
- Recomputing co-occurrence statistics: Updated datasets will be used, with potential inclusion of CV data to enrich the analysis.

Changes of the Skills Clustering planned for the next major version:

- Top-level architecture refinement: Improvements will focus on sectoral recognisability and user-friendly navigation.
- Creation of mid-level groups
  Stakeholder validation: Continued engagement with MSs and sectoral experts
  Knowledge vs Skills adjustments and correction of hierarchical relations