



Brussels, 5 April 2024
EMPL.E.1

Member States Working Group plenary meeting

18 March 2024, 9:30

The One, Rue de la Loi 107, 1000, Brussels, room 035

Minutes

1. Welcome and introduction

The agenda of the meeting was approved with no further changes. The minutes of the previous Member States Working Group (MSWG) focus meeting were also approved with no further changes.

1.1. Nature of the meeting

The Member States Working Group on ESCO (MSWG) was attended by:

- representatives of 20 EU Member States' (MS) authorities on labour market and education and training (BE, BG, DK, DE, EE, EL, ES, FR, HR, IT, LV, LT, LU, MT, NL, PL, PT, RO, SI, SE)
- representatives of one observer country (IS),
- representatives of European social partners (SME UNITED, ETUC),
- Commission, ETF, ELA and CEDEFOP services.

The European Commission (COM) chaired and opened the meeting, outlining the purpose of the meeting: inform Member States on the developments regarding the next major version, present the launch event of ESCO v1.2, provide an update on implementation of ESCO in EURES, discuss the state of play of the work on skills clustering and present the revised framework for measuring the market uptake of ESCO.

2. ESCO major version v1.2 – present state and next steps

COM briefed on the state of play of ESCO v1.2 following the conclusion of the MSWG consultation and the analysis of the feedback received. It was emphasized that contributions and suggestions from the MS have been implemented, along with additional quality enhancements to the classification, particularly for several language packages.

In this analysis, a data-driven approach was used, leveraging data from online job vacancies and EURES vacancies. COM presented the final statistics resulting from the consultation period, indicating that 740 comments were received (169 on occupations and 571 on skills & knowledge). After thorough analysis, 518 observations were accepted, 135 comments were partially accepted¹, and 86 suggestions were rejected.

Additionally, COM presented the final figures for the new ESCO major version, informing that 273 new concepts will be added, 35 new occupations, 42 new skills, and 196 new knowledge concepts, accompanied by 990 new alternative labels and 96 hidden terms. It was emphasized that after the release of v1.2, the Commission will engage the MSWG to provide input regarding the translation of new and modified concepts into all ESCO languages. The language consultation is scheduled to start in September 2024 and will span three to four months.

As part of the new ESCO v1.2, COM introduced a new solution for displaying skills relevance in occupational profiles, leveraging the existing skills-occupation matrix tables within ESCO. This enhancement will assist ESCO implementers in obtaining a quantitative measure of skills relevance for individual ESCO occupations. A visual example of this new feature on the ESCO portal was presented, illustrating how users will be able to view skill group shares for each occupation directly on the portal.

The following comments and questions were raised during the subsequent discussion:

- Members suggested to organise a training session to present the main changes introduced by the new version and how to transition applications already using older versions of ESCO. COM responded that the new version will be presented in detail in the launch event planned for May 2024. If there is still a need for training, it could possibly be organized in an online format in the second half of 2024.
- On skills relevance, Members asked if there is any correlation between the visual representation of skills and the notion of essential and optional skills. COM confirmed that there is a direct correlation from a quantitative perspective, where links between skill and occupation, whether they are essential or optional, will technically result in different weights when the share of the skills group is calculated. Generally, skills that are essential for an occupation will carry a higher weight.
- Members sought confirmation that the data for skills relevance will be calculated solely on the matrix tables available on ESCO and no additional data will be added. COM confirmed that no additional data is used.

3. Launch event of ESCO v1.2

COM introduced the promotional event: *ESCO 1.2: a global language for skills*, organised in collaboration with the European Training Foundation. The event will take place on Tuesday, 21 May 2024, from 14:00 to 17:00, and on Wednesday, 22 May 2024, from 09:30 to 17:30. It will be hosted

¹ In some cases, the final implementation took the suggestion into account but implemented only part of the proposed change

at the European Committee of the Regions' Batiment Jacques Delors, located at Rue Belliard 99/101, 1040 Brussels, rooms JD 51 and JD 52.

COM informed members that the conference will be live streamed to allow the ESCO stakeholders community to participate. The event aims to introduce the new version and the use of AI within ESCO. Additionally, various national use cases will be presented, covering different domains such job matching, career guidance, labour market intelligence, attracting talent from outside the EU, applying a skills taxonomy in the domain of education and training. The target audience includes representatives from EU Member States, EEA countries, candidate and accession countries, ETF partner countries, and third country implementers.

Each EU Member State has the option to send two representatives while non-EU countries should in principle send one representative. Details on the travel arrangements will be explained in the invitation letters.

4. State of play of the work on skills clustering: the process of building the skills clusters hierarchy

COM underlined the two primary use cases for the new set of hierarchical relations in ESCO: enhancing ESCO's user-friendliness and supporting improved matching and skills suggestion processes.

COM presented the methodology applied to define the new clusters, starting from the top-level architecture for the new visualization. Algorithms were developed to assign all ESCO concepts to the top-level groups and tested on 5,000 skills and knowledge concepts related to agriculture, ICT, and healthcare. Various external, open-source classifications were used to inform the creation of the top-level structure, along with extensive industry research specific to these domains (including research papers and industry reports). Design principles were established to guide the creation of hierarchical relationships, focusing on consistency, minimalism, comprehensiveness, rules governing polyhierarchical usage, meaningful hierarchical relations, ontological realism, mutual exclusivity, and a data-driven approach.

COM highlighted that transversal skills and languages are not included in this project, and that renaming, deleting, or creating new concept is neither in the scope of this exercise. Instead, the project solely focuses on altering hierarchical relationships using existing ESCO data. Subsequently, COM presented three practical examples from the covered domains, demonstrating the current and newly suggested visualizations and hierarchical relations. These examples illustrated improved sector/industry structure, enhanced accessibility to information (a user-friendly approach), and better comprehensiveness and consistency.

The following comments and questions were raised during the subsequent discussion:

- Members inquired about how essential and non-essential skills were incorporated into the project, along with transversal skills. COM clarified that the project solely focuses on skills and knowledge trees and does not address transversal skills. Regarding essential versus optional skills, COM reiterated that this falls outside the project's scope, which is limited to creating new hierarchical relations.
- Members sought a specific example from the health sector and queried how mutual exclusivity is achieved. COM explained that the health sector's complexity necessitates the use of polyhierarchical relations to resolve certain cases and allocations in the hierarchy. While design principles establish strict rules around polyhierarchy, the aim is to minimize its use rather than eliminate it entirely.
- Members inquired about the final implementation of the new relations and whether they will be integrated into the ESCO website alongside the traditional hierarchy. COM responded that

the project is still in its initial phase, and final decisions regarding visualization have not yet been made.

- Members asked if under the new hierarchy a skill could appear in multiple clusters. COM acknowledged that polyhierarchy may be necessary in some areas such as healthcare but emphasized the implementation of strict rules to keep it as simple as possible.
- Members inquired about the project timeline. COM stated that while the pilot currently focuses on 5,000 concepts, the goal is to apply it to all ESCO skills and knowledges and then initiate a testing phase. This testing phase will help assess the adaptability of the new hierarchy and empower use cases that were previously less supported.
- Members asked how relations would be calculated across languages. COM stated that language considerations will be addressed in the next project's phase.
- Members asked if the newly presented hierarchy has already decided maximum depth. COM assured that this project does not aim for granularity, hence there is no predetermined depth. Setting such limitations would violate the design principles of meaningful hierarchical relationships.

A second step consists of using additional parameters to improve the allocation of skills and knowledge concepts to the top-level categories and the performance of the AI models based on semantic similarity., COM proposed using co-occurrence links to complement the new hierarchy with information on how employers and workers use combinations of skills. This approach was considered necessary due to the impracticality of clustering all ESCO skills into non-overlapping groups, the non-symmetric nature of relations between concepts, and the potential for refining co-occurrence links with specific ontology relations in the future.

COM detailed how skill-skill co-occurrence is quantified, highlighting that it was tested on a small sample of 4 million vacancies, with plans to expand testing to a wider number of job vacancies and Europass profiles. Examples of this work for various ESCO skill concepts and their outcomes were presented.

COM suggested that this data could potentially be available as a downloadable file on the ESCO portal and could also be integrated into each ESCO profile on the portal. Finally, COM presented visual and graphical representations of this work with all links included that can benefit in better understanding of this co-occurrence.

The following comments and questions were raised during the subsequent discussion:

- Members inquired whether the method of co-occurrence could be used in the context of digital transition to showcase the growing digitalization of skills, and if this approach could be applied to green transition as well. COM responded that while this question is more related to labour market intelligence, ESCO's current focus does not encompass it. However, the improvements presented today could potentially lead to future research on these topics by ESCO implementers.
- Members asked whether the definition of the skills clusters could lead to the addition of new, emerging occupations in the classification. COM clarified that currently, only skills are considered.
- Members asked how the new structure could improve the services offered in Europass. COM explained that while Europass already includes a skills suggestion option, leveraging data like this to enhance the tool remains to be explored.
- Members inquired if this approach would be useful for creating and updating curricula considering the different skills relevant for the labour market. COM answered that the aim of this project is to update the taxonomy. How implementers choose to use this updated taxonomy is up to them. However, it could potentially serve as inspiration for such curriculum development, especially if complemented with information from qualifications.

- Members asked if the Commission already reflected on how often this information would be updated and if the information of qualifications would be included into this analysis. COM stated that the update frequency has not been determined yet, as further analysis is needed. Regarding qualifications, more data is required to extend this work into that realm.

COM repeated that the main use case of this project is to rebuild the classification providing simplicity and better structure of skills pillar. This work also opens up indeed questions on additional improvements needed which will be very valuable in the future for ESCO and its continuous improvement process.

5. ESCO implementation in EURES: state of play

During this presentation, COM reiterated the significance of the mapping/adoption process and the transmission of JVs and CVs data encoded with ESCO to the EURES portal, stressing that it is a legal obligation under the Commission Implementing Decisions (EU) 2018/1020 and 2018/1021.

COM provided an overview of the current status of the implementation of ESCO in EURES (reporting data from March 2024):

- 24 EURES countries had completed the mapping of occupations;
- 6 EURES countries had completed the mapping of skills;
- 4 EURES countries had completed the adoption of occupations;
- 5 EURES countries had completed the adopting of skills.

COM informed that there are countries with pending ESCO implementation (mapping/adoption). For occupations: CY, LIE and for skills: AT, CY, FR.

COM presented the latest figures from the European Labour Authority on JVs encoding with ESCO URIs, revealing discrepancies in occupations and skills matching. There is a notable gap in skills due to low national-level implementation. The importance of finding the reason of low national-level implementation has been highlighted. Comparable, even lower, figures are observed for CVs. COM emphasised the legal obligation of providing JVs and CVs tagged with ESCO URIs.

To address the challenges posed by low implementation, COM conducted in cooperation with ELA two-day training session (30/11/2023 – 01/12/2023). One aspect of the training involved reviewing the rules for establishing mapping tables between Member State classifications and ESCO, which are available in the publicly accessible in the mapping manual² on the ESCO portal. During the session, COM and ELA also demonstrated how the engine operates and processes information. The training was closed with the overview on the guidelines for implementing ESCO codes in EURES and best practices.

The outcomes of the training sessions were then presented, highlighting lessons learned by the large participation of Member States. The importance of sharing best practices regarding mapping to skills was emphasized, particularly in cases where national classifications significantly differ in size from ESCO. Some uncertainties regarding the encoding of JVs/CVs with ESCO persisted and were addressed. It was emphasized that data quality is paramount for the proper functioning of the EURES platform, and the manner in which mappings are performed significantly impacts matching scores.

Lastly, COM stressed that the deadline for compliance had elapsed by more than three years, and letters of non-compliance will be sent to the Permanent Representation of Member States in the coming weeks.

² <https://esco.ec.europa.eu/en/about-esco/publications/publication/eures-mapping>

6. ESCO market uptake: an analysis of the quality of the classification and its use based on real data

COM presented the revised Key Performance Indicator (KPI) framework in ESCO, providing clarity on its rationale and methodology. The framework includes KPIs designed to monitor and ensure quality in ESCO, measure market uptake, and address data sources and limitations. The intention behind this is to establish a long-term consistent framework that allows meaningful future analysis. In the new framework the quantitative analysis will be complemented with qualitative feedback with the aim to improve ESCO concepts and some KPIs that have been previously used will be discontinued.

The indicators for assessing the quality and usage of ESCO are categorized into six subsections. KPIs measuring the quality of ESCO include its coverage (i) of the European labour market, the consistency (ii) of the classification structure and guidelines, and the relevance (iii) of ESCO in relation to the latest data from the European labour market and external expert taxonomies. On the other hand, KPIs for measuring ESCO usage pertain to data from ESCO downloads (iv), API use (v), and consultations (vi).

For assessing the ESCO coverage of the European labour market, COM presented a formula aimed at identifying the proportion of ESCO concepts in external sources such as external expert taxonomies or labour market data. This approach involves leveraging information on the usage of ESCO in EURES JVs and Europass CVs. The objective is to gather data on ESCO's utilization by labour market experts by examining the following metrics: the number of vacancies linked to at least one occupation and/or skill, vacancies not linked to ESCO at all, work experiences linked to an ESCO occupation, and work experience labels matching ESCO terms.

After highlighting how ESCO relates to external sources, COM outlined the approach to ensuring consistency within the classification. Initially, this will involve assessing the quality of the classification by identifying concepts with repeated terms or duplicates. Next, granularity will be examined to identify any discrepancies or potential inconsistencies in the classification's level of detail and analyse them. Lastly, COM aims to determine whether the classification leans more towards high or low complexity skills and assess the consistency of links between skills and occupations.

COM also detailed the approach for addressing the relevance of ESCO. Firstly, by analysing the relations in EURES mapping tables, COM will evaluate ESCO's relevance in terms of its presence and interoperability with Member States taxonomies. Secondly, by analysing the ESCO concepts, COM will obtain a numerical indication of the ESCO concepts that are not relevant in external sources and analyse them. Finally, by analysing the links between ESCO concepts, COM will provide a quantitative indication about the relevance of links between ESCO occupations and knowledge, skills and competences with respect to labour data market.

The KPIs for the usage of ESCO are largely derived from those used in the previous framework but have also been expanded upon. The objective is to assess how ESCO implementers use ESCO through metrics such as downloads and API calls by different parameters (country, organisation type, intended use). Moreover, by examining the national classifications occupational mapping process, the aim is to obtain a quantitative indicator of the interoperability and use of ESCO through the national classification occupational mappings.

Finally, COM elaborated on the data sources and limitations of this exercise. Data sources include online job advertisements, National Classifications and mapping tables, courses, Europass work history records, usage data. Some of the limitations include the potential for incomplete representation, selection bias, limited number of courses available.

The following comments and questions were raised during the subsequent discussion:

- Members praised the work on skills complexity but stressed that there should not be a direct connection between the skill profile of an occupation (high skilled vs low skilled jobs) and the number of skills linked to that occupation.
- Members suggested to look at the different data by language because ESCO is used in three different languages (in LU for example). Additionally, Members recommended to check if COM has information on s skills or occupations implementers decide to retain for their own implementation. COM highlighted that the indicator presented in the coverage of external sources is meant to be calculated by language as well.

7. Best practices on the use of ESCO in the Member States: presentation from the Netherlands

Sarah Walk from the Dutch public employment service UWV presented the ongoing work for a revised skills taxonomy, called CompetentNL. CompetentNL is in the pilot phase and is funded by the National Growth Fund and executed by the Ministries of Labour and the Ministries for Education. The project has completed relevant milestones such as integrating skills and their definitions, outlining occupations and qualifications based on concepts, hard skills, soft skills, and knowledge components. It has also enriched occupations with contextual layers and linked them to standardized qualifications. Using AI techniques, CompetentNL extracted semantics from job vacancies and established crosswalks with other standards such as ESCO and O*Net. The framework currently comprises 40 hard skills, 60 soft skills, and over 100 knowledge components, with tasks categorized under the ESCO hierarchy.

Following the pilot testing, feedback was gathered encompassing various aspects, ranging from technical details to content specifications. The demand for establishing connections with other standards, notably between ESCO and CompetentNL skills, was notably high. There is a recognized necessity for defining relationships between skills and tasks, seeking clarity on whether specific tasks are requisite for executing certain skills and if this varies across occupations. Moreover, there is a call for gender-neutral descriptions and updating outdated language. Addressing the complexity of skills remains a challenge, as while skills have been assigned, there is acknowledgment that this may not accurately reflect skill levels.

The objective is to integrate sources and data from occupational and qualification structures into a standardized format called CompetentNL, accessible via an API, ensuring interchangeability and up-to-date information.

8. Next Steps

COM closed the meeting and thanked the participants for their active participation.

COM addressed a point raised after the last MSWG meeting in November 2023, concerning the availability of AI models. COM informed members that exploration has begun on this matter, and as an initial step, APIs (key locked) will be provided to access the data. Interested members are encouraged to express their interest by contacting the ESCO Secretariat.

Furthermore, COM reiterated the importance of the Launch event scheduled for 21st and 22nd of May 2024.

COM announced that the next technical focus meeting will be on the 17th of September 2024, while the next plenary meeting will take place in November 2024.