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ESCO in EURES: current state of the mapping/adoption process

This document provides a short overview of the current state of the mapping and adoption process in the context of the EURES Regulation, highlights the ongoing quality checks performed on the mapping tables to ensure completeness of the process and suggests further services that Member States could benefit from to improve the quality of the mapping of national taxonomies to ESCO.

Overview of mapping to/adopting ESCO in EURES

Sufficient progress has been made in mapping national classifications of occupations to ESCO, with only one EU Member State still in the process of finalising the mapping. ⁽¹⁾

Bulgaria, Croatia, Cyprus, Hungary, Latvia, Slovenia are in process of mapping their skills classifications to ESCO. Additional countries who plan to adopt ESCO as their national skills classification or who are in the process of building a national skills taxonomy are invited to inform the Commission about their planned activities.

Type	Countries
Mapping of Occupations	AT, BE, BG, CZ, CY, DE, DK, EE, FR, ES, HR, HU, IT, LU, LV, MT, NO, NL, PL, PT, RO, SE, SI, SK
Mapping of skills	BE, DE, LU, MT, SK
Adoption of ESCO-occupations	FI, GR, IE, IS
Adoption of ESCO-skills	FI, GR, IE, IS

⁽¹⁾ Overall, only three EURES countries are still pending the mapping of their national classifications to ESCO: Lithuania, Liechtenstein, Switzerland

Quality assurance of mapping tables

Establishing accurate mapping relations is crucial for the EURES job suggestion engine as the system computes a score that quantifies the match between the job seeker's work history and the ESCO occupations that are tagged in online job advertisements. Therefore, it is important to have a process (of which the mapping relations form an integral part) that links the vacancies with the most appropriate ESCO occupations.

The Commission aims to support the Member States by quality assuring the mappings done between the national occupational classifications (NOC) and ESCO, to ensure that the mapping tables accurately reflects the relationships between the two systems and that the mappings are complete. This quality assurance process is done on a technical level, in order to ensure completeness of the data and it involves:

- Checking that all NOC concepts have been mapped to ESCO and that there are no gaps between the two systems.
- Checking that the mapping tables comply with the technical standards provided by the Commission Implementing Decision 2018/1021² and the information is provided in the right format (e.g. no conflicting information, URIs are respected, etc). In case of technical issues, Member States are asked to correct the identified mistakes and submit a revised version of the mapping tables.

As a result of this exercise, the ESCO Secretariat has an overview of the technical errors and inconsistencies resulting from the mapping tables and can flag them for resolution to the concerned Member State.

Additional services to further improve the quality of mappings

In addition to the quality check described above, the Commission envisages the following support services to improve the quality of the mapping tables:

1. Use artificial intelligence to enhance the mapping process in the ESCO mapping platform

The mapping platform is an IT application designed to help establish and update inventories and mapping tables between national classifications and ESCO and it is part of the technical assistance provided by the Commission as foreseen by the EURES Regulation.

At present, the mapping platform suggests ESCO occupations/skills for each concept from the national classification through keyword matching, after which the user can validate and select the appropriate relation.

This will be further improved by integrating in the platform advanced AI algorithms that are based on semantic relatedness, thereby suggesting more relevant mapping content.

2. Measure consistency for existing mapping tables

² Commission Implementing Decision (EU) 2018//1021

Ultimately, the impact of the quality of the mapping tables needs to be assessed in the context of the actual job-matching process in EURES, for the purpose of which the mapping data is necessary.

The Commission aims to better understand how the quality of mappings influences the matching in EURES and suggests as a starting point to compare the mappings established by the national experts with suggestions originating from an AI model that measures semantic relatedness between a NOC concept and ESCO concepts. The goal of this approach is to measure consistency and understand where there is potential disagreement.

In practice, a multilingual AI model will measure the semantic relatedness between the available information from the NOC concept and the preferred title, alternative titles and description of the ESCO occupations. For each NOC concept, an overall score is computed with respect to all ESCO occupations.

This results in a ranked list of potentially related ESCO occupations for the NOC concept, which can then be used to quantify the agreement with the established mappings as done by experts. This process allows identifying the relations where it is plausible to assume no further manual expert checks are needed. Also, it helps to understand where potential inconsistencies lie and where it could be beneficial to further investigate.

Finally, Member States can review for a reduced set of NOC concepts their established mappings and those suggested by the AI model and assess whether further action is needed.

A pre-requisite for doing this analysis is that the ESCO Secretariat has access to all the relevant NOCs data from the Member State. These include the following data fields: identifier of the occupation concept, title and description of the occupation concept, alternative titles, corresponding job titles, tasks and related activities for the occupation, related skills and knowledge, allocation in the national hierarchy.

While the availability of this information varies across Member States, their impact on the performance of the AI model is proven. As confirmed by experiments, suggestions from the AI model are better aligned with the expert mappings in case more information from the national occupation concept can be taken into account, thereby reducing the amount of further quality checks.

3. Technical visits (on a case-by-case basis)

The ESCO Secretariat continues to offer its support for the mapping or adoption of ESCO and is available for technical visits or webinars. As always, this is a demand-based approach and the ESCO Secretariat encourages EURES countries to reach out with questions and support. The ESCO Secretariat also acts proactively, based on the results of the quality assurance checks described above.

Next steps

The Commission invites EURES countries to express their interest in the services mentioned above, and in particular, in quality assuring their mapping tables with the aid of the AI suggestions. The Commission aims at quality assuring all mapping tables, given the importance of a correct mapping for the matching process; however, a first-come first-served approach will be applied to prioritise the workload during the second and third quarters of 2023.