



EUROPEAN COMMISSION  
DIRECTORATE-GENERAL FOR EMPLOYMENT, SOCIAL AFFAIRS AND INCLUSION

Labour Mobility and International Affairs  
Labour Mobility, Public Employment Services, ELA

Brussels , 12 October 2021  
EMPL.E.1

## **Call for expression of interest in the third phase of the pilot project for linking learning outcomes of qualifications to ESCO skills**

### **Introduction**

ESCO is the multilingual classification of European Skills, Competences, Qualifications and Occupations supporting both the EU labour market, and education and training needs.

In June 2021, the Commission presented to the ESCO Member States Working Group (MSWG) and to the EQF Advisory Group (AG) the results from the second phase of the pilot project for testing the use of an automated approach for linking learning outcomes of qualifications to ESCO skills.

The second phase of the pilot was conducted between 2020 and 2021 with the participation of 9 EU Member States (Belgium, Czech Republic, France, Italy, Latvia, the Netherlands, Poland, Romania and Slovenia), 1 stakeholder organisation (ETUC), the Inter-American Development Bank and the European Training Foundation<sup>1</sup>.

The project demonstrated how an approach combining artificial intelligence and human intervention, as suggested by the 2019 ESCO Qualifications Pillar study<sup>2</sup>, is the most suited method to link learning outcomes of qualifications with labour market terminology. So far, it allowed estimating the required effort for creating links between learning outcomes of qualifications and ESCO skills and collecting valuable feedback for further improving the ESCO Linking Platform.

It also showed that more data is needed to further improve the matching capacity of the natural language processing algorithm in the different EU languages. A third phase of the pilot is therefore opportune in this regard, as linking more qualifications is a precondition for better and more accurate matching suggestions.

Following the discussions with the experts involved in previous pilots, this note invites EU Member States and other interested parties to engage in the third phase of the pilot. It describes the features of the third phase of the pilot and invites participation by other interested stakeholders.

### **Objectives of the third phase of the pilot**

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<sup>1</sup> Czech Republic and the ETUC participated in the pilot as observers.

<sup>2</sup><https://op.europa.eu/en/publication-detail/-/publication/5551d183-4c54-11e9-a8ed-01aa75ed71a1/language-en>

The third phase builds on previous phases of the project that provided important indications on how the proposed approach of linking learning outcomes of qualifications with ESCO skills through a mix of automation and human intervention could serve multiple use cases:

- ⇒ Adding information on skills to the description of a qualification can **support review processes** at national level and ultimately strengthen the feedback loop between education/training institutions and labour market stakeholders.
- ⇒ Building links between qualifications and skills taxonomies also helps employers to grasp the content and labour market value of a qualification from other Member States, ultimately supporting **cross-border job matching and mobility** and **transparency** of information on qualifications.
- ⇒ Linking skills and qualifications supports the development of services that provide users with **suggestions of relevant education and training offers and qualifications based on their skills profile**.

The **third phase** of the pilot will therefore explore all these use cases and pursue the following objectives:

1. Gather **verified data** on the links between learning outcomes of qualifications and ESCO skills. This data will be used to further improve the underlying algorithms.
2. Improve the technology supporting the automated linking of learning outcomes of qualifications with ESCO skills, through the implementation of a suggestion engine that consists of **three matching algorithms based on artificial intelligence**.
3. Test the automated linking and the performance of the matching algorithms in **different EU languages**. This comparative data will lead to a choice of the best performing algorithm available at this time, which will then be used in the standalone service.
4. Test how the new **ESCO transversal skills structure** supports the matching with learning outcomes describing transversal skills (e.g. problem solving, critical thinking, life competences).
5. Test how **ESCO skill groups** can be used to introduce a certain level of abstraction for qualifications from higher EQF (European Qualifications Framework) levels.
6. Test the application of **ESCO version 1.1** in the domain of education and training.
7. Make **suggestions on the ESCO skills pillar** that will feed into the ESCO continuous improvement process.
8. Support the publication of information on skills relating to national qualifications in **Europass**.

The following elements should be taken into account by the parties interested in participating in the third phase of the pilot project:

- Improving the quality of the results provided by the IT tool requires using a multitude of data in order to train the matching algorithm and adjust it to the different EU languages. For further developing the IT tool, participants shall link a **minimum of 30 qualifications** covering different EQF levels and including at least some vocational and some academic qualifications.

- Results of linking learning outcomes to ESCO skills should be shared with the Commission for further improving the matching algorithm. Participants shall **authorise in written** the Commission to reuse the mapping data for activities related to the further improvement of ESCO, including knowledge exchange with interested partners.
- Participating countries are invited to provide **concrete feedback** on the granularity, coverage and formulation of the ESCO skills and knowledge concepts and to provide indications of the matching results and relations.

### **Implementation and methodology**

Member States are invited to express their interest in participating in the third phase of the pilot project until **5<sup>th</sup> December 2021**. The first project workshop is tentatively scheduled for the first half of January 2022.

The Commission will provide an improved version of the IT tool including the following additional functionalities (compared to the version used during the second phase):

- The option of linking learning outcomes of qualifications to **ESCO skills and knowledge groups**;
- A set of **dashboards** displaying the results of the linking activity:
  - number of skills linked to a selected qualification,
  - proportion of exact/narrower/broader/close relations,
  - number of occupations associated to a selected qualification (based on common skills),
  - total number of mapped qualifications/skills,
  - total number and type of matching relation,
  - frequency of skills in the mapping activity.
- An improved mechanism for **text splitting**.
- **Filtering of suggestions** according to the skill type (skills or knowledge concepts) and/or key words inserted by the user.

The table below summarises the actions, the actors involved, the expected outcomes and the timing:

<b>Action</b>	<b>Actors involved</b>	<b>Expected outcomes</b>	<b>Timing</b>
Development of an improved IT tool for linking learning outcomes of qualifications to ESCO skills	COM	An improved version of the IT tool available to participating parties.  ESCO v1.1 is integrated in the linking tool.	September 2021-January 2022
One-day workshop (via Webinar)	COM  MS	Presentation of the IT tool.  Understanding what we want to achieve (presenting use cases for	January 2022

		linking).	
Linking of learning outcomes of qualifications to ESCO skills	MS	Usage of learning outcomes in national languages for the improvement of the matching algorithm.  Testing of the ESCO v.1.1 and the ESCO transversal skills hierarchy.  Feedback on the usability of the IT tool and on the performance of the different algorithms.	February – April 2022
One-day workshop (in Brussels or via Webinar)	COM MS	Presentation of the results of the third phase by countries.  Discussion on next steps.	April 2022

Based on the results of the third phase, the Commission will evaluate the performance of the different candidate algorithms and the need for gathering more data. In the medium term, the Commission aims at developing a permanent tool that:

- is able to provide qualitative results in different national languages, shifting from the current approach based on machine translation libraries<sup>3</sup>
- is sufficiently mature to allow for the release of a standalone service which can be used free of charge by any stakeholder willing to link structured data on qualifications with ESCO skills.
- can support the publication of information about skills linked to a qualification and/or learning opportunity, including micro-credentials.

### **Conditions for participation**

- Countries participating in the EQF and in ESCO or testing the usage of ESCO can participate in the pilot.
- Public and private organisations using ESCO to match learners with relevant learning opportunities and/or active in the domain of curricula development.
- The Commission will reimburse travel costs for participation in physical workshops.
- The Commission will make available technical support to the participants.

Deadline for expression of interest: 5 December 2021.

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<sup>3</sup> Currently the IT tool translates internally in EN the description of a given learning outcome, identifies (also internally) relevant skills in EN and suggests the same skills in the given national language. This methodology was followed in the pilot's first phase because of the higher availability of data in EN for the training of the matching algorithm.

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