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Towards ESCOv2.0: Scope and Timeline.

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Purpose of this document

This document provides an overview of the scope of the new ESCO major version and an indicative timeline for its release. It covers a detailed summary of the activities that will be carried out as part of the continuous update process, as well as the specific methodology required for each of these activities.

1. SCOPE OF ESCOV.2.0

The new major version of ESCO will bring significant changes to the classification and will represent a first step towards the evolution of ESCO from a simple taxonomy to a more complex ontology. ESCO version 2.0 will in fact combine traditional quality improvements and content updates with a staged implementation of the strategy for the evolution of ESCO ([1]).

When it comes to content updates, the ESCO Secretariat will apply a variety of data sources to create new content which requires specific methods to collect, analyse and create new concepts, according to their characteristics.

To achieve this, the scope will be focused on the following 7 activities:

i. Restructuring the skills pillar (strategy)
ii. Data-driven maintenance of skill-occupation relations
iii. Content updated on priority sectors.
iv. Subclassification of STEM skills ([2])
v. Review and update of software and other ICT tools in the ESCO skills pillar
vi. Modelling of granularity of ESCO skills (tasks or work activities) in the ESCO model.

2. METHODOLOGICAL OVERVIEW

2.1. Restructuring of the skill pillar

In the scope of the major version, certain elements of the ESCO strategy will align with the practical restructuring of the skills pillar.

([1]) The term 'ESCO strategy' refers to the roadmap to transform the ESCO classification into a domain ontology that represents the labour market and is structured based on sound ontological principles and heuristics. The roadmap was presented and discussed with the Member States Working Group on ESCO in March 2025: MSWG March 2025 Note on updates to the skills pillar v.1 final.pdf

([2]) STEM is an umbrella term that groups: Science, Technology, Engineering and Mathematics. Read more here: https://education.ec.europa.eu/focus-topics/stem

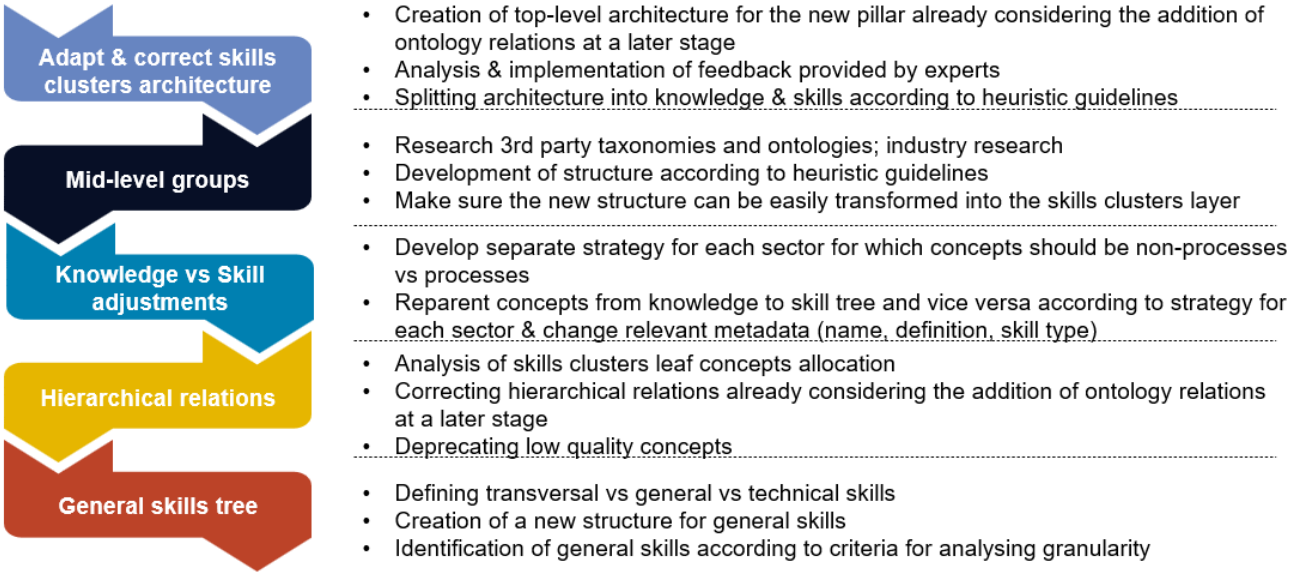

Figure 1. Restructuring of the skills pillar process

The new structure for the skills pillar, which will be modelled as a domain layer, will coexist with the current structure of the skills pillar based on four sub-classifications including an ISCED-F based classification for knowledge concepts (application layers). For more information, we refer to the document 'Information note on updates to the skills pillar' presented during the 27th ESCO MSWG meeting.

2.2. Data-driven maintenance of skill-occupation relations

Each ESCO occupation is linked to essential and optional knowledge, skill and competence concepts:

- Knowledge, skills and competences are essential for an occupation in case they are usually relevant for the occupation, independent of the work context, employer or country.
- Knowledge, skills and competences are optional for an occupation in case they may be relevant or occur when working in an occupation depending on the employer, working context or country. Optional knowledge, skills and competences are very important for job-matching because they represent the diversity of jobs within the same occupation.

Relations between occupations and skills were first defined in the context of each sectorial reference working group ([3])based on the experience and opinion of experts. Since the initial release, the relations have been maintained by the ESCO Secretariat through expert input and desk research.

([3]) https://esco.ec.europa.eu/en/about-esco/escopedia/escopedia/reference-groups?id=224

In June 2025 ([4]), the Member States Working Group discussed and agreed on the approach to further improve, and keep up to date, occupations-skills relations. The approach is based on establishing a continuous improvement process to:

- Improve the quality of the existing relations based on current labour market dynamics
- Identify currently missing relations between occupations and skills
- Repeatably verify the quality of all occupation-skill relations at fixed time intervals

The proposed methodology combines natural language processing of online job advertisements and CV data to extract occupation-skill patterns, which are then compared to the existing dataset.

2.3. Content on key sectors

A major version entails revising the classification coverage of priority sectors to improve their representation. Identifying priority sectors is essential to manage resources and focus the effort on fast evolving areas of the economy. ESCOv2.0. will therefore address the following areas:

- Nuclear energy
- Quantum technology
- Artificial intelligence
- Cyber security
- Space
- Defence
- Clean tech and net-zero technology
- Renewable energy
- Automotive
- Healthcare and social services
- Agriculture
- Logistics
- Manufacturing
- Non-conventional occupations
- Public administration (EU level)

The content update work will follow the workflow applied to external expert input in the past two major versions of ESCO:

([4]) 28th ESCO Member States Working Group focus meeting

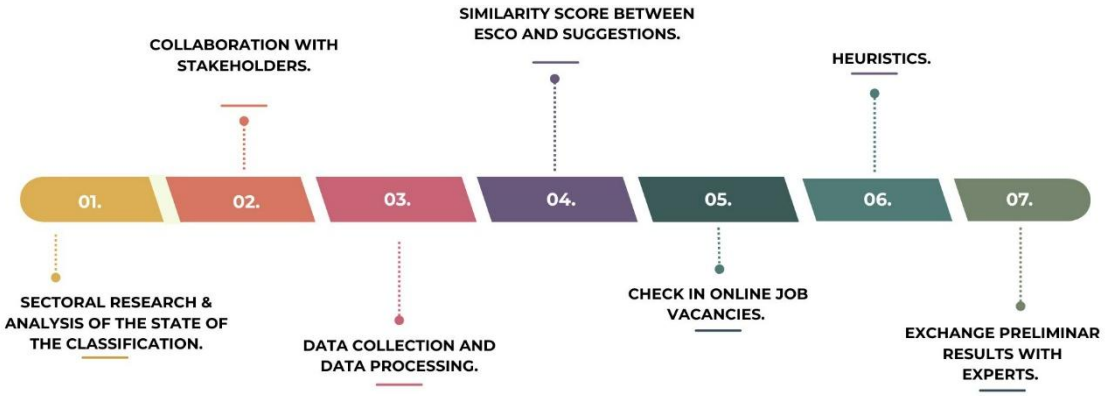

Figure 2: Analysis workflow of external expert's proposals

01. Conduct research on the labour market related to key sectors of interest, focusing on skills and occupations demanded and required due to the ongoing green, digital and demographic transitions.

Analyse the current state of ESCO concerning the selected sectors and the extent of coverage of the classification to identify gaps and areas for improvement.

02. Collaborate and exchange data with sectoral experts.

03. Gather data from the consulted sources and extract information on skills and occupations terms.

Process the data by enriching extracted information with metadata (alternative labels, descriptions, reusability levels etc).

04. Implement a validation process to select the set of potential candidate concepts for this update cycle by mapping them to existing ESCO concepts.

AI models provide **similarity results between ESCO and the new content suggestions**, to prevent the inclusion of duplicates in the classification. Considering the similarity score obtained, decisions are taken on whether the suggested concepts could be a new occupation or skill, an alternative label for an existing ESCO term or should be discarded.

05. Verify again the list of potential new concepts **against a representative dataset of online job vacancies (OJVs) from EURES ([5]) and data collected by the WIH ([6])**

([5]) EURES

([6]) WIH homepage | Eurostat CROS

project. Moreover, the model provides web search results regarding the proposed concepts to support the decision-making process.

06. Apply heuristics principles to ensure that the potential new content meets established standards.

07. (where applicable) Share the preliminary results with the external experts for feedback.

Once the validation process is completed, the content will be included in the scope of the consultation of the Member States Working Group on ESCO.

2.4. Subclassification of STEM skills

In the current European context where the digital and green transition have rapidly developed, STEM (Science, Technology, Engineering and Mathematics) has become a critical field. The improvement of training and education in STEM is a priority since these skills are, and will increasingly be, in demand in the labour market.

In previous versions of the classification green and digital skills were labelled, making their identification easier among ESCO concepts. As foreseen in the STEM Education Strategic Plan ([7]), the Commission will *develop by 2026 a STEM competence framework for all learners at all stages of education and a taxonomy of STEM skills within the ESCO classification*. This will inspire and promote curriculum design, and assessment frameworks for STEM skills. For this reason, ESCO 2.0 will introduce a new label for STEM profiles, allowing implementers to access and browse the list separately.

2.5. Improvement of ESCO Software tools

The list of existing software tools in the classification will be reviewed and updated. This task is directly linked to the restructuring of the skills pillar within this major version.

In 2023, the ESCO Secretariat conducted a pilot project on ICT concepts that was presented during the 23rd meeting of the ESCO MSWG ([8]). The solution for addressing software and ICT tools in the revised ESCO skills pillar will be based on a multi-level structure, with the creation of a category for software within the broader ICT cluster, and a subcategory for software tools which will distinguish different types of software:

- Digital tools for collaboration and productivity.
- Tools for processing sound and images.
- Word processing tools.
- Publishing and presentation tools.

([7]) STEM Education Strategic Plan (legal document) - European Education Area

([8]) 23rd ESCO MSWG meeting | European Skills, Competences, Qualifications and Occupations (ESCO)

- Software tools that are created for specific industries.

The narrower terms of these broader categories will be concepts that classify specific types of software.

In order to avoid commercial preferences, names of specific software's products will be included either as alternative labels or hidden labels (e.g. Microsoft access will be a hidden label for 'office software').

2.6. Modelling of granularity in the ESCO model ([9])

The major version will introduce changes to the ESCO data model that will enable the addition of metadata, indicating which skill concepts represent tasks. For more information, please refer to the note for the current MSWG titled 'Strategy update and options for modelling granularity'.

3. THE ROLE OF THE MSWG

In line with established practice, **the Commission will consult the Member States Working Group** on the draft ESCO v2.0. The consultation will focus on the following aspects:

- Review of preferred label and description of new content.
- Review of non-preferred terms identified for new content.
- Review of hidden terms assigned to software tools (if applicable).
- Review of the dataset of STEM skills.

The ESCO Secretariat will be responsible for ensuring respect of the terminological guidelines and quality assurance of the proposed content. It will also provide Member States with technical support.

The specific modalities/tools for providing feedback will be communicated at a later stage. Input provided by the Member States and the experience from previous consultations will feed into the new process. Further details regarding the process and methodology will be defined as the version evolves.

Experience from previous content update cycles and feedback from stakeholders point to the need to review certain areas of the classification where skills and occupations requirements vary across Member States.

([9]) The work on modelling ESCO granularity depends on the progress of restructuring the skill pillar as it can only be carried out after its full implementation. Therefore, its development will be determined by the timeline of the version.

Where relevant, the ESCO Secretariat will therefore organise focus meetings dedicated to specific work strands of the new version that required input from Member States. In this regard, the ESCO Secretariat identified healthcare and social services as an important work strand.

4. TIMELINE

Figure 3. below provides a high-level overview of the planning for the upcoming ESCOv2.0. It outlines the key phases of the update process until the release of the new version, which is tentatively planned for **release by end 2027.**

The content work on ESCOv2.0. has already begun and it will continue until the **end of 2026.** Once that phase is completed, a three-month **MSWG Consultation** will take place between **January and March 2027.**

Translations are planned to be launched by **May 2027** so that the new version could be published by the end of the year. The 'language' consultation for ESCOv.2.0. will be then conducted in a subsequent minor version in 2028.

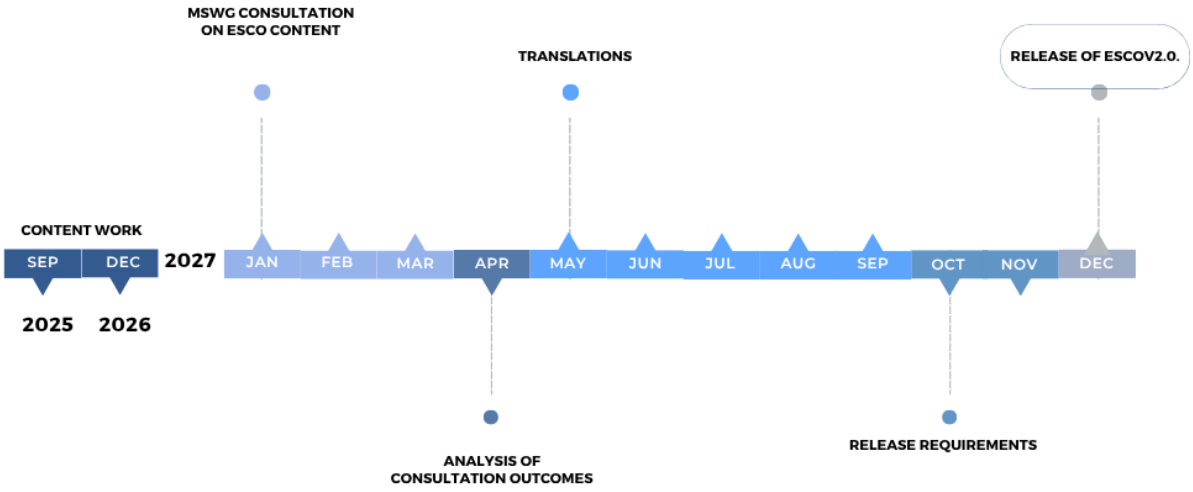

Figure 3. ESCOv2.0. timeline