



# ESCO strategic framework

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## **ESCO strategic framework**

Vision, mission, position statement,  
added value and guiding principles

This document is based on the strategic framework that was jointly developed by the [ESCO Board](#) and the Commission services in 2016.

## Background

While 23.9 million people in Europe are unemployed<sup>1</sup>, skills gaps emerge in some regions and some economic sectors. Employers in healthcare, ICT, engineering and the green economy increasingly experience difficulties in finding suitable candidates for vacant jobs.

Intra-EU labour mobility can help addressing the imbalances. As highlighted by President Juncker<sup>2</sup>, the Commission believes in the economic opportunities created by labour mobility. It promotes mobility across the European Union, especially in fields with persistent job vacancies and skills mismatches. At the same time, fast shifts in job creation and job destruction require flexible and responsive labour markets and continuous up- and reskilling of the workforce.

Integrated labour markets across Europe with improved conditions for geographic and professional mobility can better adapt to these structural and sectoral changes. The *New Skills Agenda for Europe*<sup>3</sup> identifies an easier understanding of qualifications and the validation of non-formal and informal learning as important steps in removing barriers to occupational and geographical mobility of workers. This can only be achieved if information on skills and qualifications is transparent and can be exchanged between the involved actors.

At the same time, effective services and smart e-recruitment tools are essential to match people with jobs across Europe. The Internet and Social Media are changing the way people search and exchange information. Nowadays, people use their computer or hand held devices to look for training opportunities, employees and vacant jobs. While the amount of information available on people, jobs and education has grown exponentially, it became more challenging to decide which information is relevant and trustworthy. Public and private employment services therefore play a conducting role for labour market transitions and effective matching solutions. This requires the systematic provision of information on new job openings and opportunities. Without sharing and understanding information relating to qualifications, occupational experiences and skills acquired in other countries, matching people to vacant jobs across borders can be very challenging.

As outlined by President Juncker<sup>4</sup>, the Commission recognises the need to align workers' skills with industry needs. The goal is to promote productivity and employability through the supply of knowledge and skills that match the current and

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<sup>1</sup> Eurostat, February 2015.

<sup>2</sup> Juncker, Jean-Claude: *A New Start for Europe: My Agenda for Jobs, Growth, Fairness and Democratic Change; Political Guidelines for the next European Commission; Opening Statement in the European Parliament Plenary Session; Strasbourg, 15 July 2014.*

<sup>3</sup> <http://ec.europa.eu/social/BlobServlet?docId=15621&langId=en>

<sup>4</sup> *Ibid.*

future demand of the labour market. This includes the necessity for lifelong learning, the acquisition of transversal competences to support creativity, better anticipation of skill needs and building new bridges between the labour market and the education and training provision.

## Vision

ESCO is a multilingual classification of European Skills, Competences, Qualifications and Occupations. By providing a common reference terminology, ESCO can enhance the functioning of the labour market, can help to build an integrated European labour market and can support bridging the communication gap between the world of work and the world of education and training.

With ESCO all actors in the European labour market and in the education and training systems can develop a shared understanding of occupations, skills, competences and qualifications. This common understanding should allow them to communicate effectively with each other.

ESCO is developed as part of an emerging Semantic Web<sup>5</sup> in the labour market and the education and training sector. The Semantic Web aims to transform the World Wide Web from a collection of documents into a web of interlinked and reusable data. Job vacancies, CVs and training curricula would no longer just be documents, but standardised sets of data. This data can be used by tools, such as job matching platforms, HR systems, career guidance tools or statistical applications. In the same way, ESCO can be used as a building block for practical tools, applications and services. Therefore, ESCO benefits the main actors in the labour market and in education and training:

### ESCO can help **employers**

- to understand the learning outcomes of people in practice, i.e. the knowledge, skills and competences they obtained in education, training or "on the job";
- to express which knowledge, skills, competences and qualifications they expect from their employees;
- to find the right person for a job.

### ESCO can help **individuals**

- to understand what employers need;

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<sup>5</sup> "The Semantic Web is a vision for a richer version of the World Wide Web, where content carries information about itself to make searching, navigation and commercial transactions easier." Cf. CORDIS: Enhancing tools for the semantic Web.

- to understand how they can develop their career through lifelong learning;
- to document and describe their knowledge, skills and competences in order to find the right job.

#### ESCO can help **education and training providers**

- to undertake surveys and analyse data in order to obtain high quality information on current and future labour market needs as a basis for the further development of curricula;
- to make the contents of their education and training offers more understandable for learners;
- to increase transparency and visibility of the qualifications they award.

#### ESCO can help **employment services** and **guidance counselors**

- to provide better e-services to their customers;
- to serve customers in several languages;
- to build partnerships with other service providers and exchange data with them, in particular to strengthen cooperation between public and private employment services as well as with education and training providers.

### **Mission**

ESCO established a common language to support bridging the communication gaps between different countries and between the domains of employment, education and training. It increases transparency of occupations, qualifications, skills/competences and learning outcomes. This transparency and common reference will help people to exchange information with unambiguous and shared meaning, independent of the language and the electronic systems used. This is often referred to as *semantic interoperability*.

**In July 2017** the publication of ESCO established a multilingual reference terminology reflecting realities in both the labour market and the education and training systems. It interlinks occupations, skills, competences and qualifications as a way to bridge the communication gap between the domain of employment and of education and training. The goal is to make visible i) which knowledge, skills and competences are usually applied when working in a specific occupation, ii) which knowledge, skills and competence are learning outcomes of a specific qualification and iii) which qualifications are required or often requested when seeking work in a specific occupation. In order to develop the reference terminology, ESCO was built using

existing sources, in particular work results coming from other European projects in the field of qualifications. The ESCO terminology is published according to linked open data standards so that interested parties can use it easily and free of charge and can link other data sources to ESCO as a reference. ESCO supports users by providing technical information, guidelines for the use of ESCO and training.

In order to increase the acceptance and use of the common language, ESCO aims at:

- **by end of 2017:** establishing a system for continuous updating of the ESCO classification and support national developments in closing the gap between occupations, skills and qualifications classifications and in particular support Member States that create machine-readable translation tables (mappings) between ESCO and their national classification or that implement ESCO on national level;
- **by 2018:** providing a system to translate and transcode between national occupational or skills classifications and similar de facto standards. This way it will help strengthening the interconnection of national systems and facilitate cooperation between Member States' authorities. To this end, ESCO will provide a common terminological reference point which will make it possible to communicate using different classifications and languages.

## Position statement

The Commission developed ESCO in coherence with other initiatives and instruments at European and national level. In fact, ESCO needs to work complementarily with other instruments for enhancing interoperability in the labour market and in education and training. These include in particular:

**Classification systems, controlled vocabularies and frameworks** such as national occupational classifications, International Standard Classification of Occupations (ISCO)<sup>6</sup>, the European Qualifications Framework (EQF)<sup>7</sup> or the e-Competence Framework<sup>8</sup>;

**Databases** with complementary information such as national qualification databases or the Commission Database on Regulated Professions<sup>9</sup>;

**Technical or syntactical standards** such as Europass<sup>10</sup>, skills passports<sup>11</sup>, HR-XML<sup>12</sup> or schema.org<sup>13</sup>;

<sup>6</sup> International Labour Organization: ISCO website.

<sup>7</sup> Learning Opportunities and Qualifications in Europe: EQF.

<sup>8</sup> European e-Competence Framework.

<sup>9</sup> European Commission: Regulated professions database.

<sup>10</sup> Cedefop: Europass.

<sup>11</sup> ESCOpedia: Skills passport.

<sup>12</sup> HR Open Standards.

**Legislation** such as the Directive 2005/36/EC on the recognition of professional qualifications<sup>14</sup>;

**Tools and services** that help people to develop their careers, such as EURES<sup>15</sup>, national job portals and career guidance tools.

ESCO will be used within the **EURES** network of employment services in order to exchange job vacancies and CVs between Member States and with the Commission. The new EURES Regulation<sup>16</sup> describes the role of a "European classification" and in the interoperability system between employment services. Additionally, it provides for the adoption of two implementing acts to formalise, for the purpose of EURES, the use of an ESCO's list of occupations, skills and competences (Article 19(2)) and the mapping between national classifications and ESCO (Article 19(6)).

The release of ESCO v1 does not automatically mean that it will be immediately used as the European classification for the purpose of EURES. Procedures and methods to accommodate new versions of ESCO will be specified in the implementing act under Article 19(6).

The Commission developed ESCO as a complementary tool to the **EQF**. Within the framework of the EQF, Member States reference their national qualifications frameworks (NQF) to the EQF to allow a better comparability of qualification levels. Furthermore, Member States develop databases of national qualifications in which they assign a NQF level to each qualification and describe its learning outcomes. ESCO on the other hand offers a standardised terminology to make learning outcome descriptions comparable across borders. Transparency is best achieved by combining the two: the EQF makes national qualification systems and the level of qualifications comparable; ESCO can be used to annotate<sup>17</sup> learning outcome descriptions, so that they are understandable across Europe. To this end, organisations in charge of developing learning outcome descriptions, such as awarding bodies or Member States' authorities select the relevant ESCO knowledge, skills and competence concepts. This allows to understand information on learning outcomes in 26 European languages and Arabic and to use it in automatic tools, without replacing or translating the full learning outcome description. ESCO therefore builds on the EQF. It relies on the EQF as an instrument to make qualification levels comparable and on the national databases of qualifications as the main source for data on qualifications.

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<sup>13</sup> Schema.org.

<sup>14</sup> Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications

<sup>15</sup> European Commission: EURES – The European jobs network.

<sup>16</sup> [http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L\\_.2016.107.01.0001.01.ENG](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2016.107.01.0001.01.ENG)

<sup>17</sup> "An annotation is metadata (e.g. a comment, explanation, presentational markup) attached to text, image, or other data." In text documents annotations can be used to "add information about the desired visual presentation, or machine-readable semantic information" "in a way that is syntactically distinguishable from that text". Cf. Wikipedia: Annotation.

The Member States and the Commission's activities in the field of regulated professions are reflected in ESCO. As ESCO is based on labour market realities, it makes use of the information in the Commission Database of Regulated Professions on access to professions or their scope of practice in Member States. However, ESCO links to information on the regulatory aspect of occupations, but it does not aim to regulate the access to professions or to define their scope of practice.

By connecting transparency instruments, ESCO provides a clearer and more complete picture of labour market and education-related information. The resulting product is put at the disposal of practical tools through the Linked Open Data approach. This ensures a low threshold for owners of labour market systems to use ESCO and **enable better services** (see fig. 1).

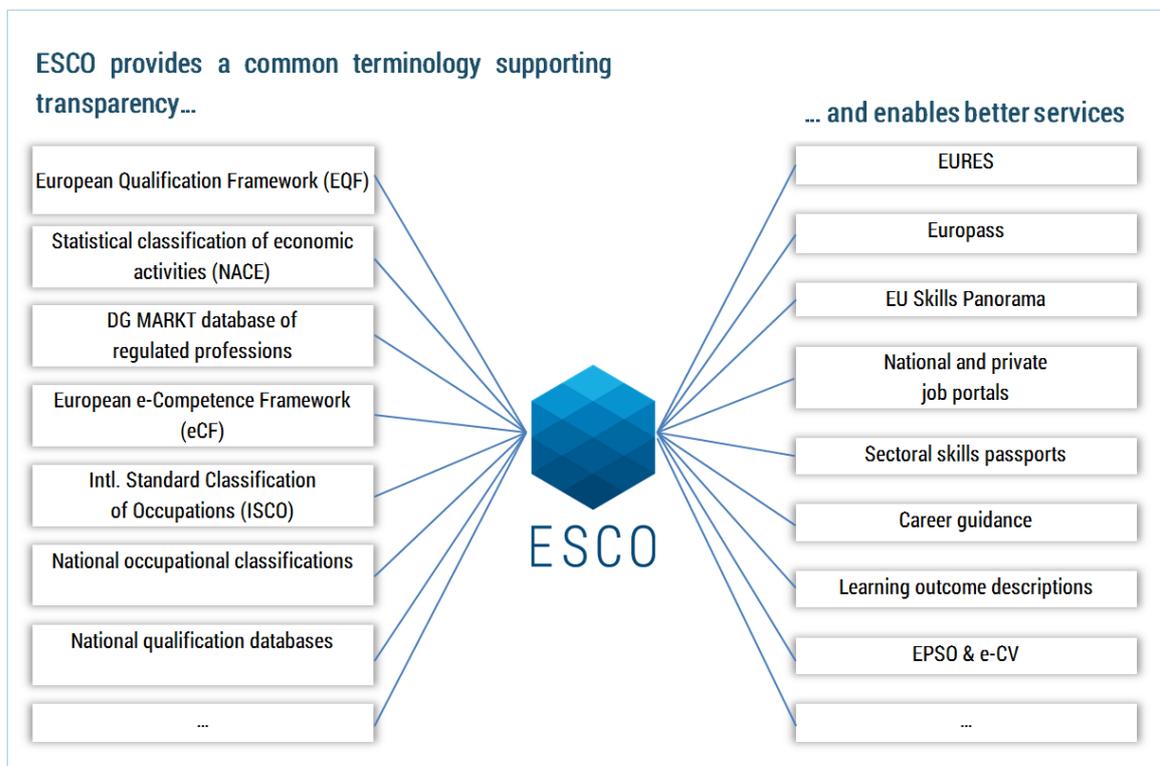


Fig. 1: ESCO provides a common terminology supporting transparency and enables better services

## Added value

ESCO allows to exchange information on the demand for labour (job vacancies), on the supply of labour (candidate profiles, CVs, skills passports) and on improvement of human capital (training opportunities, career pathways). By facilitating communication, ESCO can help to improve the matching of people to jobs, skills development and labour market intelligence in various use cases.

## **Better matching of people to jobs by employment services or electronic tools:**

- Help employers to define the set of skills, competences and qualifications required for a vacant job.
- Help jobseekers to build professional profiles listing the knowledge, skills and competences acquired through formal, non-formal or informal learning or work experience.
- Semantically annotate the information in job vacancies, CVs and other relevant documents, thus making it language independent.
- Help workers and learners to identify skills gaps against target occupations.
- Allow public and private employment services to exchange information (on job vacancies or jobseekers applications) in a meaningful way.
- Helping employment services in the creation of self-services so that they can focus their resources on the clients that need assistance.
- Provide a rich terminology that enables state of the art search mechanisms, such as semantic search<sup>18</sup> and natural language processing<sup>19</sup>.
- Facilitate job design by employers so that they make a better use of available skills and improve human resources management.

## **Enabling mobility by enhanced EURES service:**

- Enable EURES partners to exchange job vacancies and CVs while maintaining the information that is needed for high quality competence-based job matching<sup>20</sup> on European level.
- Provide jobseekers with access to more job offers and employers with access to more jobseekers' applications across borders.

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<sup>18</sup> "Semantic search seeks to improve search accuracy by understanding searcher intent and the contextual meaning of terms as they appear in the searchable dataspace, whether on the Web or within a closed system, to generate more relevant results." Wikipedia: Semantic search.

<sup>19</sup> "Natural language processing (NLP) is a field of computer science, artificial intelligence, and linguistics concerned with the interactions between computers and human (natural) languages. [...] Many challenges in NLP involve natural language understanding, that is, enabling computers to derive meaning from human or natural language input". Cf. Wikipedia: Natural language processing.

<sup>20</sup> "Competence-based job matching is a method to find the best match between jobseekers and vacant jobs by comparing knowledge, skills and competences of the candidate with the requirements of the employer." Cf. ESCOpedia: Competence-based job matching.

## **Supporting Educations and Training systems in the shift to learning outcomes that serves better labour market needs:**

- Support the provision of information to education and training institutions that can help them to develop curricula by taking into account emerging skills needs.
- Help learning institutions to express their learning outcomes in a way that facilitates the understanding of their qualifications across borders and attracts learners from across borders.
- Help to provide more transparent information on learning outcomes and labour market relevance of qualifications to learners before they enter into education or training.
- Help career counsellors to enhance career planning, including with the use of new e-tools.

## **Supporting evidence based policy making**

- Enhance collection, comparison and dissemination of data in skills intelligence and statistics tools, among others, in the European Skills Panorama.
- Enable better analysis of skills supply and demand in real time and based on big data.

## **Guiding principles**

The following principles guided the development of ESCO:

- **Useful.** ESCO needs to be useful for all interested parties, in particular for public and private employment services, education and training institutions and online service providers. It needs to be fit for purpose to support their services. ESCO aims at becoming a de facto standard for identification and communication of occupations, skills, competences and qualifications. It was developed in a step-by-step approach and for practical use in applications.
- **Accepted.** The Commission has the ambition to make ESCO the backbone of the interoperability system in EURES, making it the European classification advocated in the new EURES regulation. In addition to that, ESCO aims to be voluntarily adopted by key stakeholders by demonstrating its added value, ease of use and by being responsive to users' needs.
- **User-led.** The Commission developed ESCO with the needs of users as the guiding principle.

- **Updated.** ESCO has to be kept continuously updated and adapted to changing circumstances in order to reflect changing realities and to maintain its usefulness and added value.
- **Flexible.** ESCO does not aim to standardise the scope of practice of occupations or the learning outcomes of qualifications. Instead, it aims to provide the terminology that can be used to describe the details of a job, the professional profile of a jobseeker or the content of a learning outcome description.
- **Quality.** The Commission, together with stakeholders and external contractors, carefully ensured the quality of work results before publication so that ESCO corresponds accurately and in a meaningful way to realities in the labour market and in education and training.
- **Involvement of national level.** The Commission involved the Member States in order to increase ownership of the development of ESCO and support its use at the national level.
- **Involvement of stakeholders.** The Commission involved stakeholders and in particular Social Partners in developing and defining terms of use in ESCO. It will continue to do so for the maintenance of the classification.
- **Inter-sectoral approach.** When possible, to avoid silos and promote functional and sectoral mobility, ESCO paid particular attention to horizontal, transversal and transferable skills, inter-sectoral occupations and overarching qualifications.
- **Multilingual.** ESCO is multilingual, i.e. it provides terms for the same concept in 26 European languages and Arabic.
- **Reflecting realities.** ESCO reflects realities in the European labour market and the education and training sector.
- **Transparent and open development.** The development of ESCO was transparent, work results were shared with interested parties and it was open towards all stakeholders.
- **Reusable.** ESCO results are published under a license that makes it easy for stakeholders to use ESCO for commercial and non-commercial purposes, free of charge.
- **Machine readable.** The Commission recognises the need for machine-readable and semantically enriched information that can be easily found, shared and reused. ESCO was developed for this purpose. Additionally,

correspondence tables (mappings) to national, regional and sectoral classifications are being developed. The Commission is therefore committed to publishing and maintaining ESCO according to linked open data standards.

- **Compatible.** ESCO was developed to ensure maximum compatibility with existing IT systems and standards.
- **Dynamic.** Over time, ESCO will adapt to changing user needs, new developments in the labour market and the education and training sector and new technological possibilities.