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ESCO Annual Report 2019

European Skills, Competences, Qualifications and Occupations

ESCO

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1. Executive summary

This report covers developments in ESCO during 2019 and the work done by the Commission to ensure the continuous improvement of the classification as well as to support its uptake in the labour market and in the world of education and training.

The report presents the structural improvements to the classification, focusing on the maintenance of the ESCO skills pillar, the changes to the ESCO qualifications pillar and the conceptual work to link the two pillars, helping to bridge the communication gap between the labour market and education.

The report also showcases the different ways in which ESCO can be used to increase transparency, common understanding and trust in the labour market and education and training. For this, the report describes ESCO's use in concrete services to match people with jobs, guide job seekers and workers towards new career opportunities, support validation and recognition of skills, and provide training and learning suggestions. The contribution of ESCO to the main EU initiatives in the field of skills and competences is also highlighted.

The report concludes with a description of the approach underpinning the ongoing work on the next major version of ESCO (version 1.1) and a reflection on the ambition for the year to come.

Figure 1. 2019 in review

2. Foreword

By Manuela Geleng, Director for Skills, DG Employment, Social Affairs and Inclusion, European Commission

In today's fast changing labour market, skills have a crucial role in increasing employability through matching European job seekers with the right jobs.

Digitalisation and technological changes are transforming the way we live and work. Moving towards a low-carbon economy and becoming a climate neutral continent requires a skilled workforce able to drive forward the twin green and digital transitions, make use of technological innovation and develop competences, knowledge and attitudes on climate change and sustainable development. Digital, transversal and green skills are among those most requested by employers. New forms of work and rapid transitions from one occupation to another mean people need to upskill and reskill more often and continuously learn throughout their lives.

The Commission has put the skills challenge at the centre of its policies. The first principle of the European Pillar of Social rights refers to access to quality education, training and lifelong learning for achieving full participation in society. The European skills agenda for sustainable competitiveness, social fairness and resilience (2020 Skills Agenda) sets out actions to promote lifelong learning and empower individuals to acquire the skills they need for both work and life and for the green and digital transitions.

In this policy vision, ESCO, the European Classification of Skills, Competences, Qualifications and Occupations, has a significant role given that it powers a number of actions supported by the 2020 Skills Agenda: the new Europass, the Skills-OVATE project of CEDEFOP, the Blueprints for sectoral cooperation on skills and the transversal skills for the green and digital transitions. ESCO plays a crucial role as it offers a multilingual tool to match jobseekers with new jobs and opportunities created by the technological and green transitions. Further than that, ESCO allows to identify skills emerging in the labour market and to understand how they match with those of jobseekers and learners.

During 2019, ESCO expanded its roots, becoming a European standard. More and more private and public organisations have been using it to provide labour market services, validate skills and design curricula. Member States have started implementing ESCO at national level and experts have worked to improve the structure of the classification. The community of ESCO stakeholders also expanded, with different events at national level. The launch of the new Europass will offer an opportunity to use ESCO in innovative digital services.

I would like to thank all the stakeholders who have contributed their expertise to taking forward ESCO this year: national authorities, social partners, public employment services, sectoral organisations and education institutes, to name just a few. I look forward to our continued common efforts to further develop ESCO and deliver on our shared ambition for a fair and efficient labour market.

3. Introduction

ESCO is the European multilingual classification of Skills, Competences, Qualifications and Occupations. It works as a dictionary, describing, identifying and classifying occupations, skills and qualifications relevant for the EU labour market and education and training. Those concepts and the relationships between them can be understood by electronic systems, which allows different online platforms to use ESCO for services like matching jobseekers to jobs on the basis of their skills, suggesting trainings to people who want to reskill or upskill etc.

ESCO provides descriptions of 2942 occupations and 13485 skills linked to these occupations, published in 27 languages (all official EU languages plus Arabic, Icelandic and Norwegian).

The aim of ESCO is to support job mobility across Europe and therefore a more integrated and efficient labour market, by offering a "common language" on occupations and skills that can be used by different stakeholders on employment and education and training topics. In this context, ESCO supports the automated skills-based matching of the EURES service platform. EURES is the network of European employment services which aims to provide information, advice and recruitment and placement services for workers and employers. ESCO's mission is also to bridge the labour market to education by helping education and training providers to understand what skills are needed in the labour market. They can then adapt their curricula accordingly to better prepare their students for tomorrow's labour markets. ESCO also helps potential employers to better understand what jobseekers have learned.

ESCO is a European Commission project, run by the Directorate General for Employment, Social Affairs and Inclusion (DG EMPL). It is available in an online portal and can be consulted free of charge. Its first full version (ESCO v1.0) was published on 28 July 2017.

4. ESCO's take-up in the labour market and in education and training

4.1 ESCO implementers

2019 saw an increased take-up of ESCO in employment and education. With more than 17000 downloads worldwide, ESCO registered a strong interest with a wide range of users, also outside the EU. More than 60 EU implementers are currently using ESCO and this group includes private companies, employment services, public institutions etc.

In 2019, the Commission started monitoring more closely the roll-out of ESCO in the labour market, including the adoption or mapping by Public Employment Services but also the take-up by private stakeholders and by different consortia as part of EU-funded projects.

The Commission is in contact with many of these stakeholders (implementers) on an ongoing basis via pro-active outreach and requests for meetings by the implementers.

The infographic below summarises the state of play of ESCO implementers.

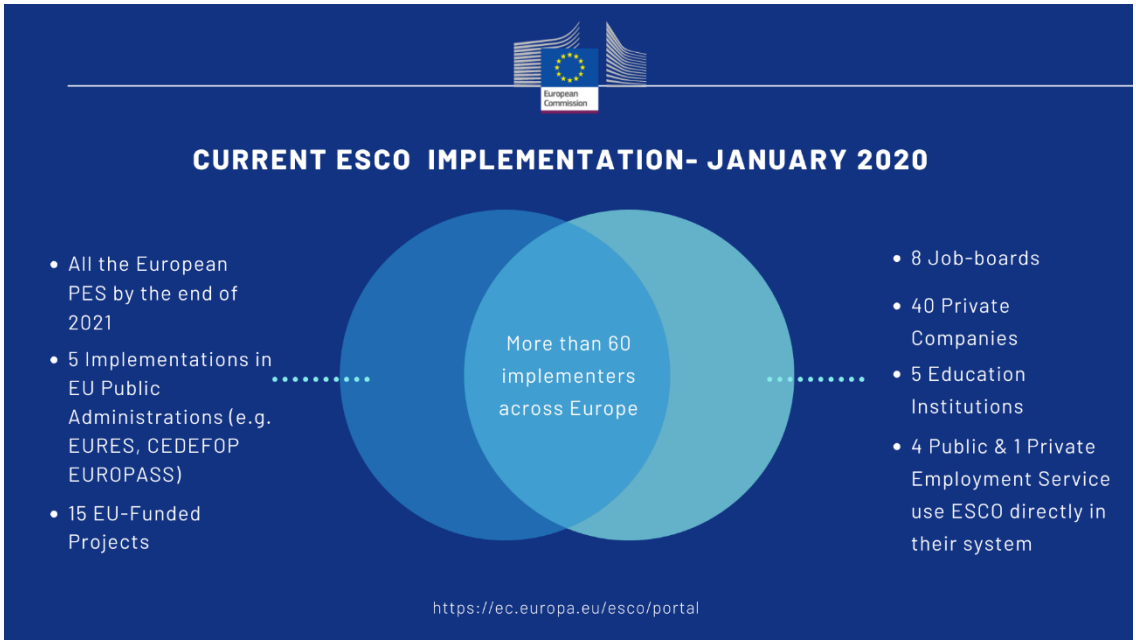


Figure 2. ESCO implementers' overview

4.1.1 ESCO implementers matching people to jobs

ESCO is used in job-search and job-matching applications in various ways. First, it connects national classifications mapped to ESCO and makes possible the exchange of information on labour market data like skills and professional experience of jobseekers, therefore enabling systems' interoperability and workers' mobility in Europe. In addition, ESCO helps employers by suggesting occupations and skills for the creation of job vacancies and by enabling skills maps of companies' employees for staffing new projects or for organising trainings. ESCO also helps jobseekers by suggesting occupations and skills for the creation of CVs and by improving search results when looking for a job. Finally, ESCO is used in the IT field for improving Natural Language Processing and matching algorithms based on skills characteristics (and other factors like skills demand and supply and emerging skills). ESCO implementers in this area come from both the public and the private sectors, as presented in the table below.

Figure 3. ESCO for job-matching and job-searching

In the following snapshots, ESCO implementers provide an insight into their use of the classification in the area of matching people to jobs. Which services do they offer to their end-users and which benefits do they see in using ESCO?

ESCO implementer

BOOSTRS

Business/industry

Human Resources

Customer segments

Industrial companies, public organizations, training providers

Geographical area

French and English-speaking countries

ESCO use case

Strategic Workforce Planning

Organizational transformation

Internal mobility

Learning and Development

ESCO IN YOUR SERVICES

Your key services:

- Skillmapper: application allowing HR to pilot jobs and skills data
- Talentmapper: application stimulating internal mobility
- Skillfinder: application allowing to measure the effectiveness of a training program

Benefit of using ESCO:

- Data accuracy, and multi-lingual aspect
- Client coverage: Large number of industries included
- User experience: Language accessible to end users

"ESCO data is best in class! It is scientific, standardized, relevant, and easy to understand by our users."

boostrs

ESCO implementer

XTRAMILE

Business/industry

Within the recruitment area, we improve HR sourcing (either for talent acquisition or training centers). We are a Parsing specialist on the HR sector (Job Offers and CVs).

Customer segments

AFPA (National training centers for adults)
Synergie (international HR group: recruitment, temporary employment, training)
Oresys (IT talent recruiter)
GRDF (Energy)

Geographical

France
Germany

ESCO use case

ESCO use cases that covers our activities:

- Matching skills to jobs and trainings,
- Advertising job vacancies
- Documenting and mapping skills and qualifications of jobseekers

ESCO IN YOUR SERVICES

Your key services:

- Broadcasting of announcements
- RS / jobboards / display
- Intelligent Targeting
- Machine Learning
- Optimization
- Dashboard / analytics
- Targeted dynamic banners
- Classification of CVs
- Extraction of CV data
- HR Sourcing abroad

Benefit of using ESCO:

- Reference for Cvs and Job Description analysis
- Facilitating matching CV JD
- Facilitating JD segmentation

"ESCO is a relevant framework that goes along our aim to better apprehend global talent supply and demand"

Screen shot of product X-ranking: ranks the best profiles for a specific job

ESCO implementer

ADECCO GROUP

ESCO IN YOUR SERVICES

Your key services:

- Staffing (temporary and permanent)
- Training and Education
- HR Consultancy
- Assessment & development
- School & Universities Partnership

Business/industry

The Adecco Group is the world's leading workforce solutions partner. It is a multi-brand platform of HR and workforce solutions, which brings together, under a unique ecosystem, a wide variety of multidisciplinary services with the intent to speak to institutions, organizations, governments and companies with specific competencies.

Customer segments

Small – medium – Large and Multinational Company in all business areas

Geographical area

60 Countries

ESCO use case

Which ESCO use case covers your activities?

ESCO classification

Labor market analysis

Benefit of using ESCO:

- Update of local job descriptions enriched by ESCO contribution
- Alignment of job category, job description and skills at European level in The Adecco Group Countries
- Leverage on ESCO to define new business models based on the predictive analysis on new professions and emerging skills
- Enrich recruiters know how by sharing ESCO information and methodology
- Take advantage of the labor market analysis
- Source and dataset for The Adecco Group Employability Platform "Phyd"

"Data means nothing without analysis and correlation"

ESCO implementer

MILCH & ZUCKER

Business/industry

Provider of employer branding strategies and HR software product family "BeeSite"; operator of "JobStairs.de" – job posting and job search platform.

Customer segments

Job board "JobStairs" and "BeeSite" customers; large enterprises or enterprises with high staff requirements

Geographical area

JobStairs' main language is German. Customers headquarters based in Germany, Austria, Switzerland. Job ads in all locations and all languages possible

ESCO use case

Ontology and taxonomy of occupations, skills and qualifications to enable high-quality natural language processing despite limited data corpus in German language.

ESCO IN YOUR SERVICES

Combining the ontologies and taxonomies of ESCO with the deep-learning based big-data analysis of our collection of German language job postings, we were able to provide the following new services to our B-2-B customers (recruiters) and to the users of our web-site "JobStairs.de" (job seekers).

Our new key services:

- Semantic job search: recognize typing errors, automatically finishing the search string based on the first few characters
- Augmented / semantically-extended search: suggesting occupations with similar qualification thus provide better search results
- Equal opportunities: helping recruiters in formulating their job posting in a gender-neutral way. We learned on the basis of ESCO so that our AI-Algorithm suggests neutral or gender-alternative names for occupations
- Key-wording of job posting texts: we extract the relevant keywords which describe a given job posting, so that the recruiters can target and customize their web advertisements to the relevant audience
- (work-in-progress) Augmented writing: assisting recruiters in writing better job postings, predicted to attract more qualified and fitting applicants
- (work-in-progress) Self-improving contextual chat bot

Benefit of using ESCO:

- The high quality, purity and relevant completeness of ESCO data let us ensure that our custom trained embeddings have the relevant semantic correlations
- The information from the ESCO database enriches our data, which makes it possible to learn on the basis of limited text corpus in German language in the professional context of the HR industry

"We use the synergy of ontology and deep learning to reach real understanding between the recruiters and job seekers"

ESCO implementer

WCC

SOFTWARE THAT MATTERS

Business/industry

WCC Group is a leading provider of advanced solutions for Public & Private Employment Services and ID/Security government agencies. Built on its unique search & match platform, WCC software solutions see 1/3 billion people every day, enabling organizations to seamlessly capture, generate, and analyze big data from multiple sources, gaining valuable insights paramount to effective decision-making.

Customer segments

WCC enables Public and Private Employment Services to match people with suitable and sustainable jobs.

Geographical area

WCC software is deployed at Public and Private Employment Services worldwide including Germany, Singapore, the Middle East and Costa Rica.

ESCO use case

Job matching based on skills and competences, connecting to the localized ESCO taxonomy.

ESCO IN YOUR SERVICES

Your key services:

- Provide matching software for occupation and skills based matching utilizing taxonomies such as ESCO, ROME-3, and others, or a combination of different knowledge models.
- Add and adapt ESCO knowledge model to local labor markets with WCC "taxonomy manager"
- Help organizations to map and maintain links to local taxonomy and ESCO

Benefit of using ESCO:

- Multilingual, very elaborate occupation taxonomy that includes skills, maintained by experts from different countries
- Makes skills-based matching accessible for countries with little resources on local taxonomy management
- Can be used for Gap Analysis and upskilling of labour force

"ESCO as a rich and multi-lingual taxonomy can give a kick-start to skills based matching"

ESCO implementer

MY HOUSE OF SKILLS

ESCO IN YOUR SERVICES

Your key services:

- Match jobseekers to occupations skills-based.
- Expose jobseekers to skill-relevant up-to-date vacancies.
- Identify important skills gaps and offer sustainable career paths.
- Enable employers to search for candidates skills-based.

Benefit of using ESCO:

- Individuals can record their acquired skills based on work history.
- Employers can define the set of skills relevant for current and future vacancies, distinguishing between essential and optional skills.
- My House of Skills platform generates a semantic similarity measure for skills-resemblance between individuals and occupations.
- Enabling skills-based suggestions for sustainable career paths and life-long-learning.

Business/industry

My House of Skills is the online platform linking people to jobs, vacancies and training opportunities, using a skills-based approach, and is part of the overarching public-private partnership (PPP) *House of Skills* in the Netherlands.

Customer segments

People moving from job-to-job and from unemployment-to-job; primarily vocationally educated and in the Metropolitan Area of Amsterdam.

Geographical area

Metropolitan Area of Amsterdam, the Netherlands.

ESCO use case

Connecting people and jobs

"ESCO is an important building block in enabling personal skills-based career paths."

Optional: Add below a photo/visual of your company/website/product.

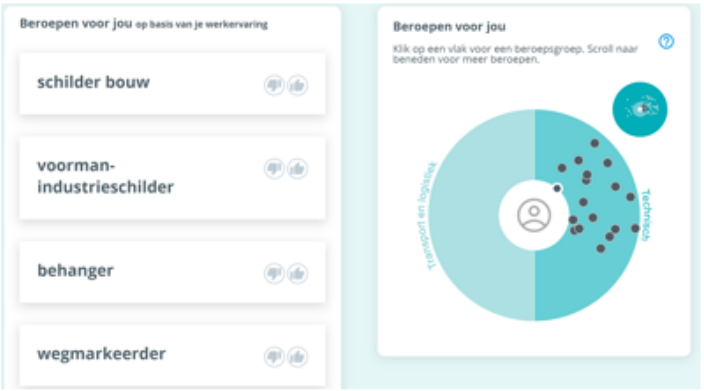


Figure: Personal skills-based occupations board in My House of Skills platform displaying the semantic distance between an individual and occupations

ESCO implementer

ACTONOMY

Business/industry

Actonomy is active In the semantic searching & matching business for HRM applications.

Customer segments

Staffing agencies, job portals and large corporate clients

Geographical area

Globally but with a main focus on Western Europe

ESCO use case

We use ESCO to map out ontology onto ESCO and to return (if reuired) ESCO information.

ESCO IN YOUR SERVICES

Your key services:

- Actonomy skills engine with mapping onto ESCO
- Actonomy matching engine
- Actonomy classification engine with mapping onto ESCO
- Actonomy recommendation engine

Benefit of using ESCO:

- Standaard framework
- Direct link between ESCO/ISCO
- Linking between job titles and skills

It allows us to standardize HRM data in an easy way!

Semantic searching & matching

ESCO implementer

RANDSTAD NETHERLANDS

Business/industry

HR services, mainly matching supply and demand of labor.

Customer segments

1) Both SME's and large corporations that are in need of HR support or personnel. 2) people looking for work or work-related insights.

Geographical area

In the Netherlands: Dutch, English. Internationally though, Randstad is active in most European countries and the larger nations around the World (US, Russia, China, Japan etc)

ESCO use case

ESCO is currently used as a foundation for our skills- and occupation taxonomy.

ESCO IN YOUR SERVICES

Your key services:

- Use ESCO skills and occupations to register new inquiries from clients so we have a richer understanding of their needs
- Use ESCO skills and occupations to provide clients and candidates (workers) insights into related occupations based on ESCO
- There are many more business cases that we are currently working on to implement in the future, for example carrier-path advice based on skills

Benefit of using ESCO:

- International standard; available in multiple languages
- Reputation: well-known and backed by EU
- Connection to qualifications: (although in progress) interesting link to (international) qualifications

We see ESCO as a valuable international standard for skills and occupations, where continuous improvements increase the value for users.

4.1.2 ESCO implementers connecting the labour market to education and training systems

ESCO supports education reforms and talent management strategies in various applications. As regards the development of curricula and qualifications, it enables the comparison and analysis of the content of qualifications (thus supporting transparency), the definition of learning outcomes and the collection and analysis of skill trends through skills intelligence to inform education and training bodies. ESCO also supports career guidance by enabling the creation of self-assessment tests and the provision of personalised suggestions of trainings on the basis of learners' skill gaps and desired career paths and the market's skills trends. Finally, ESCO supports the visualisation of acquired knowledge, also from informal and non-formal learning, by enabling the creation of skills passports and open badges.

ESCO implementers in this area come from both the public and the private sectors, as presented in the table below.

Figure 4. ESCO for education and training

In the following snapshots, ESCO implementers provide an insight into their use of the classification in the area of bridging the labour market to education and training and explain the services that they offer to their end-users and the benefits they see in using ESCO.

ESCO implementer

EU SKILLS PROFILE TOOL

Business/industry

Governmental services

Customer segments

National authorities responsible for reception and integration of refugees; reception centres; employment assistance services; education and training advisers; NGOs and charitable organisations.

Geographical area

The tool is **multilingual**, available in all EU languages (except Irish) and in Arabic, Farsi, Pashto, Sorani, Somali, Tigrinya and Turkish.

ESCO IN YOUR SERVICES

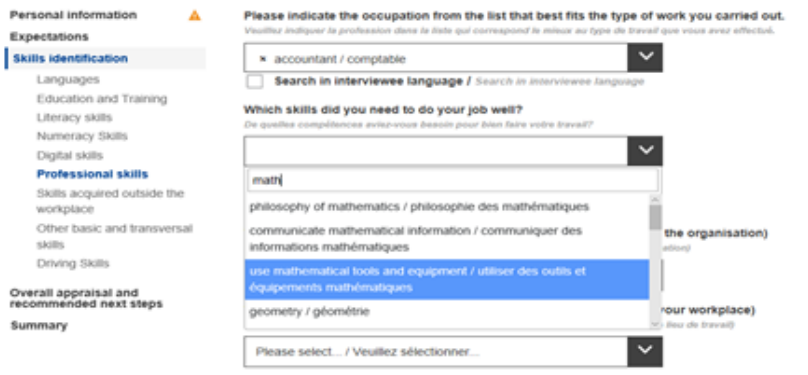
The EU Skills Profile Tool for Third Country Nationals is an online tool intended for use by any services that may be assisting citizens of non-EU countries and should be used in an interview situation to get to know the individual, their skills, qualifications and experiences. The Tool uses ESCO in mapping skills and occupations of the interviewee.

Your key services: The focus of the tool is to help individuals produce a profile of their skills and to help an adviser identify any recommendations or next steps. The information collected can be used to: support further assessment; form a basis for offering guidance; identify up-skilling needs; support job-searching and job-matching.

Benefit of using ESCO:

- The Skills Profile Tool re uses existing classifications.
- No need to make our own classifications on skills and occupations.
- The multilingual nature of our Tool with two languages on the screen is highly complementary to the multilingual nature of ESCO.

"With ESCO we are able to provide additional information to our Tool on 2942 occupations and 13.485 skills linked to these occupations"



ESCO implementer

KEHA-CENTRE

Business/industry

PES Finland (Public Employment Service Finland)

Customer segments

Personal customers (job seekers and employees) employers and entrepreneurs collaborative partners (private, public and third sector organizations)

Geographical area

Finland covering languages Finnish, Swedish and English

ESCO use case

Personalized e-service for job matching

ESCO IN YOUR SERVICES

Your key services:

- Job Market Finland offers matching services for both jobseekers and employers, based on ESCO
- Jobseekers' profiles use ESCO in describing the jobseeker's skills, competence and occupation
- Job postings are also described by using ESCO
- In the close future our service will help both jobseekers and employers in describing their needed or offered skills with ESCO by using AI-based tools
- In the close future we'll be able to match the right services to both jobseekers and employers with ESCO as one part of the matching feature

Benefit of using ESCO:

- Matching the jobseekers' profiles with the right job postings and vice versa
- ESCO provides a common language for the matching and is one part of the matching algorithm

ESCO implementer

SKILLLAB

Business/industry

For job seekers who want to progress professionally, Skilllab is a personal career assistant that supports job seekers and career counselling services to uncover professional career pathways into jobs, education and volunteering.

Customer segments

Public Employment Agencies

Private Employment Agencies

Non-Profits providing career support

Geographical area

All EU countries and languages

Our assessment tool is increasingly used outside of the EU

ESCO use case

We use ESCO as underlying skill model to assess an individual's skills and match them to the need of all occupations

ESCO in your services

Your key services:

Skilllab's mobile app is a personal career assistant that makes professional career pathways into local jobs, education and volunteering visible.

Job Seekers can:

- Easily capture and present skills and knowledge gained during their lives
- Better understand their personal skillsets and how they relate to career and learning pathways
- Automatically generate detailed and well-designed CVs
- Empower jobseekers to take more agency of searching and finding jobs and education opportunities

While Employment Agencies:

- Quickly understand a job seekers complete skillset
- Better insights for more effective and personalized career counselling
- Skill-based job matching to increase chances of placing job seekers into the right jobs faster
- Inform data-driven policy-making and program design

Benefit of using ESCO:

- Job seekers use the mobile app in one of 27 languages, from anywhere and on their own time
- Drawingonadatamodelof13,485skills, our Artificial Intelligence (AI) enables job seekers to identify and document their skills
- Skill-based matching to 2,942 occupations in the European labour market

"Through ESCO, we are able to guarantee accessibility and compatibility of our skill assessment tool in all European countries"

ESCO implementer

OPEN BADGE FACTORY

Business/industry

eLearning / Human resources

Customer segments

Our customers are mainly organisations (associations, schools and companies) that need to recognize skills and competences of the 21st century.

Geographical area

European countries, full support in French, English and Finnish

ESCO use case

Some of Open Badge Factory's customers have started to align their badges with ESCO

ESCO IN YOUR SERVICES

Your key services:

- Online platform for creating, issuing and managing digital credentials (aligning with the open badge standard)
- Open Badge Passport - A free social platform where badge earners can receive and share their badges

Benefit of using ESCO:

- In Open Badge Factory, badge creators can browse ESCO and add skills/competences and activities from ESCO to their badge alignment fields.
- ESCO gives the possibility to better connect badges and employability
- It will soon be possible in Open Badge Passport to search for badges based on the ESCO classification (in Spring 2020)

> ""With ESCO, open badges can become meaningful for European employers"

Website: https://openbadgefactory.com/

ESCO implementer

ARISTON

Business/industry

Software company focused on the design of psychometric tests since 1991. The ARISTON Psychometric Series are based on human knowledge regarding personality types, talent diagnosis & management, occupational & career guidance, etc.

Customer segments

Universities, Schools, private and public sector organisations, including the Ministry of Education of Cyprus, University of Athens, University of Nicosia, University of Kiev, Roma Tre University, Mediterranean University, VOLVO, Coca-Cola, Vodafone, European Investment Bank.

Geographical area

All European countries, Russia, Ukraine, Africa, U.S.A., Arab countries (Dubai, Egypt, etc.).

ESCO use case

Online psychometric matching of people to jobs, re-skilling and up-skilling, Occupational guidance, personal and career development.

ESCO IN YOUR SERVICES

Tells us how you use ESCO to deliver services to your customers.

Your key services:

The ARISTON Series of Psychometric Tests offer services in the areas of:

- A) Human resources management,
- B) Personnel assessment & selection,
- C) Occupational guidance & Vocational counselling,
- D) Career reassessment
- E) Personal development
- F) Career development

The ARISTON Expert System analyses the ESCO occupations, in order to retrieve those that are closely related to the personality of an individual, taking into consideration aptitudes – abilities, preferences, and special skills, as defined in the ESCO database.

Benefit of using ESCO:

- ESCO offers analytical, standardised information on occupations, including skills and aptitudes that are necessary for human resources management, career orientation etc.
- ESCO enables accurate communication between organisations and individuals in the area of psychometric testing.

> "ARISTON test matches personality with occupations, while ESCO provides in depth information about occupations"

www.aristontest.com, info@aristontest.com

ARISTON PSYCHOMETRICS

4.1.3 ESCO implementers in the analysis of labour market data on skills and occupations

ESCO supports the statistical analysis of the labour market. It enables the extraction and classification of data from online job vacancies, CVs and qualifications and the comparison of such data across the EU. Within such analysis, ESCO also allows to analyse skills supply and demand as well as shortages and surpluses. It also allows to identify emerging skills and occupational trends across Member States and economic sectors. Furthermore, ESCO helps to analyse similar career paths based on skills transferability, including graduate tracking. Finally, it enables the identification and analysis of mismatches between learning outcomes of qualifications and skills required by the labour market. ESCO implementers in this area come from both the public and the private sectors, as presented in the table below.

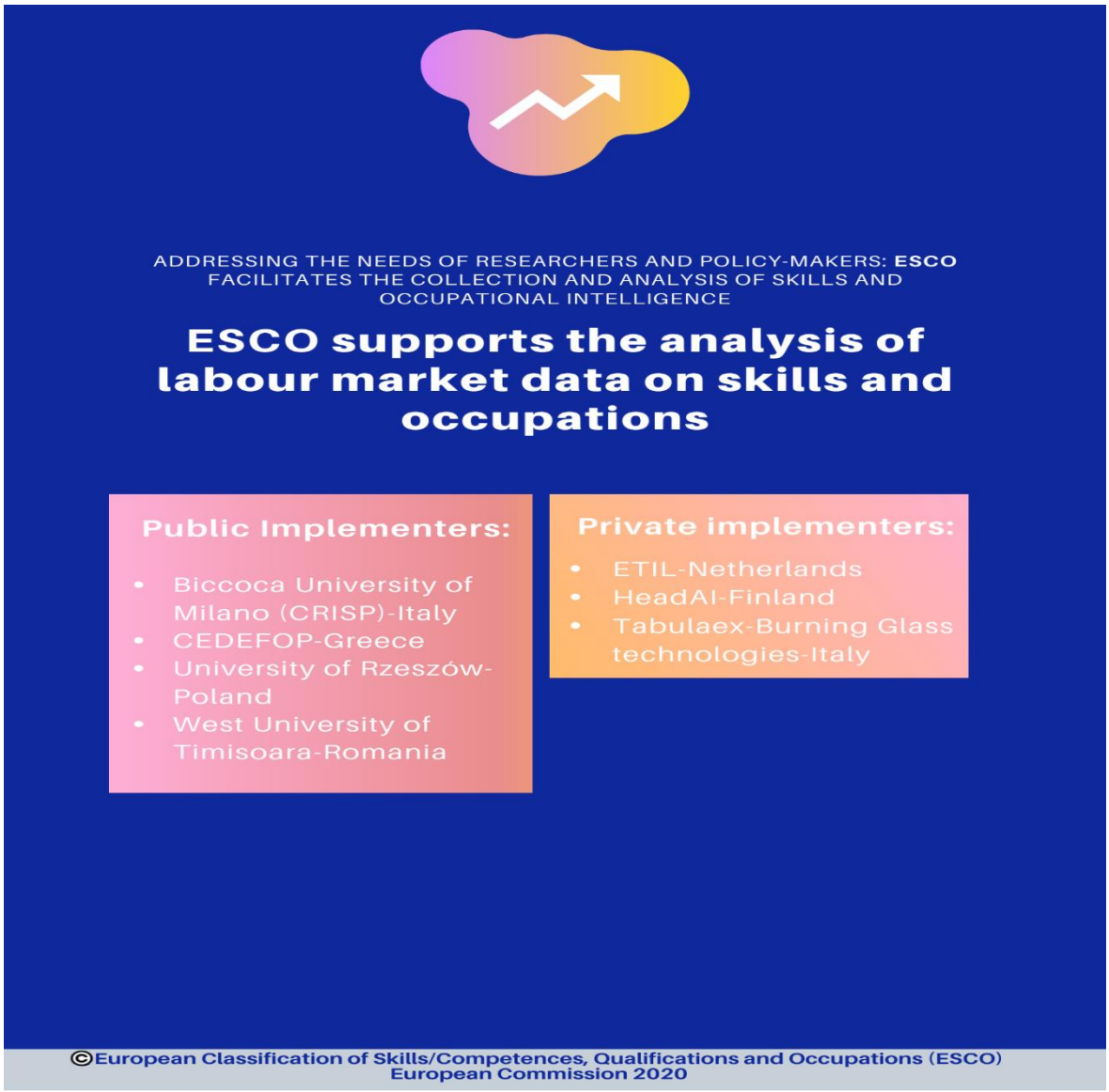


Figure 5. ESCO for big data analysis of labour market

4.2 EU implementers of ESCO

4.2.1 ESCO in the new Europass

The Europass Decision, adopted in 2018 by the European Parliament and the Council calls on the Commission to provide better services for skills and qualifications (Decision 2018/646)1. Implementing this Decision will support the transparency and understanding of skills and qualifications through open, accessible and multilingual web-based tools as well as the provision of relevant information and guidance to learners, jobseekers, workers and volunteers (both through an online platform and national services).

The new Europass was launched on 1 July 2020, as part of the 2020 Skills Agenda. Europass offers the Europass e-Portfolio, a comprehensive set of web-based tools, supporting individuals to document and describe their skills, qualifications and experience and to manage their career and lifelong learning. More specifically, end-users will be able to create and manage their Europass profile in multiple languages, create customised curriculum vitae and cover letters and store them in their Europass online library, compile their skills profile, list their career and learning preferences, receive customised job and course suggestions, and find job and course opportunities.

In line with the Europass Decision, when developing the new platform, the Commission has been testing the use of ESCO. ESCO, and more specifically ESCO skills and occupations, have been used in the following ways in testing and, following user feedback, supports the new platform as follows:

- In the Europass Profile:
  - ✓ Work experience: End-users can either select an ESCO occupation or use free text to fill the field "occupation or position held" for a specific work experience.
  - ✓ Personal skills - language skills: End-users can either select a language from a list including i.a. ESCO language skills, or use free text to fill the fields "mother tongue" and "other languages".

- In the My Skills section of Europass, where end-users can build their personal skills profile:
  - ✓ Skills suggestions: End-users receive skills suggestions to build their skills profile. These suggestions are drawn from ESCO and are generated based on analysis of their e-Portfolio content and user-similarity.
  - ✓ Manually add ESCO skills: End-users use the search field fed by ESCO skills to manually add ESCO skills to their skills profile.
  - ✓ My Skills display: End-users see their skills displayed in their skills profile according to the hierarchy of skill groups.
  - ✓ ESCO skills descriptions: End-users can consult the ESCO skills descriptions when clicking on a skill suggestion, or on a skill in the search dropdown when manually adding a skill, and in their skills profile.

- In the My Interests section of Europass, where end-users list their interests and preferences to receive tailored job and course suggestions:
  - ✓ End-users specify what interests them in the form of interest tags. Next to free text, end-users benefit from controlled lists like ESCO occupations and

[1] Decision (EU) 2018/646 of the European Parliament and of the Council of 18 April 2018 on a common framework for the provision of better services for skills and qualifications (Europass) and repealing Decision No 2241/2004/EC. Last accessed on 09/08/2018 at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018D0646&from=en.

skills to create interest tags. The interest tags will serve as one of the inputs to offer end-users tailored course and job suggestions.

4.2.2 CEDEFOP's big data analysis of the European labour market

In 2019, CEDEFOP released preliminary results of its ongoing project "Skills-OVATE" (Online Vacancy Analysis Tool for Europe) which is using ESCO and is focused on the real-time analysis of labour market information[2]. In particular, Skills-OVATE offers detailed information on jobs and skills demanded by employers in millions of online job vacancies, coming from thousands of sources in 28 European countries, including private job portals, public employment service portals, recruitment agencies, online newspapers and employer websites. It is part of the 2020 Skills Agenda, in particular its Action 2 for strengthening skills intelligence. The project uses ESCO to extract, classify and present information on skills that employers demand in more than 38 million online job vacancies, collected from different online sources (job portals, recruitment agencies, news websites, employers' portals etc) in Austria, Belgium, Czech Republic, Denmark, Germany, Hungary, Spain, Finland, France, Italy, Ireland, Luxembourg, the Netherlands, Poland, Portugal, Sweden and Slovakia. Work to include data from other Member States is ongoing and the release of data for all EU Member States is foreseen for the end of 2020. The project is an excellent large-scale test-bed for the use of ESCO in labour market intelligence and big data analysis.

4.2.3 Blueprints for sectoral cooperation on skills

The Blueprint for sectoral cooperation on skills[3] is one of the flagship actions launched by the 2016 Skills Agenda and reinforced by the 2020 Skills Agenda as part of its Action 1 for the Pact for Skills.

The mandate of the Blueprints is to address skills shortages and unemployment in several sectors of the economy. Stakeholders work together in partnerships, also called sectoral skills alliances, to develop and implement strategies to address skills gaps. These partnerships are composed of key stakeholders, including:

- Businesses
- Trade Unions
- Research Institutions
- Education and Training Institutions
- Public Authorities

ESCO is a valuable source of information for analysing the occupational landscape in those economic sectors where Blueprints are implemented. At the same time, project partners are invited to look at the structure of ESCO occupations for creating new occupational profiles and dedicated training programmes, as ESCO allows analysing the evolution of an economic sector from the point of view of the skillset needed to perform a specific occupation.

[2] https://www.cedefop.europa.eu/en/data-visualisations/skills-online-vacancies/most-requested-skills.

[3] http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=7969.

4.2.4 ESCO in EURES

In 2016, the EURES Regulation[4] aiming to put in place better job search and recruitment services across Europe was adopted. It reinforces the cooperation between Member States and the Commission regarding interoperability, in particular the exchange of CVs and job vacancies via a single coordinated channel and automated matching between job vacancies and CVs.

Article 19 of the EURES Regulation and its Implementing Decisions adopted by the European Commission on 18 July 2018 provide for the use of a European classification of skills, competences and occupations (ESCO) with a view to developing an automated skills-based matching tool through the EURES portal. To enable successful implementation, Member States need to supply the job vacancies and CVs using ESCO codes defining occupations and skills. Member States have until August 2021 to map their national occupational classifications/national skills classifications to ESCO. Alternatively, they can decide to directly adopt ESCO at national level.

In this context, the Commission is supporting Member States in the following forms:

1. Through the ESCO mapping platform: the platform is an IT application designed to help Member States map their national classifications to ESCO. It is available to Member States that wish to use it and during 2019, the Commission provided access to the platform to the following eight Member States: Belgium, Bulgaria, Germany, Hungary, the Netherlands, Poland, Spain and Sweden.
2. Through delivering training in the form of webinars and workshops. These sessions ensure that Member States have the right tools and knowledge to map to or adopt ESCO in their systems. The Commission provided a classroom training for EURES countries on 14-15 May 2019, to explain the use of the mapping platform. The training was attended by 31 participants from 25 countries and was perceived as highly satisfactory by participants with an overall satisfaction index at 88.5%.
3. Through country visits upon request, in order to support Member States that map to or adopt ESCO. The Commission visited the Central Public Employment Services in Madrid (SEPE) on 10 April 2019 upon invitation of the EURES Spain National Coordinator in order to advise the Spanish authorities on the implementation options, methodologies and tools for the mapping process. Based on the discussions during that visit, the Spanish authorities decided to map their national classification of occupations to ESCO.
4. The Commission launched the call for proposals VP/2019/010 "EURES: support to national classification inventories and innovative national online services for mobile workers". The aim of the call was to financially and technically support Member States to comply with the obligations under Article 19 of Regulation (EU) 2016/568. Eight countries applied to the call.[5]

[4] Regulation (EU) 2016/589, OJ L 107, 22.4.2016, p. 1.

[5] The list of the awarded grants is available at: https://ec.europa.eu/social/main.jsp?catId=632&langId=en.

4.3 Improving ESCO's take-up

4.3.1 Linking qualifications to ESCO skills

One of the key elements of ESCO is the provision of a labour market – based skills vocabulary that can work as a terminological bridge between education and training and the labour market. Linking the second and the third pillars of ESCO will support transparency and sharing of information on qualifications, help education and training institutions to describe qualifications, and will allow users to identify relevant qualifications and training opportunities for missing skills.

During the joint meeting of the European Qualifications Framework Advisory Group and the ESCO Member States Working Group of 6 February 2019, the Commission presented the results of the Qualifications Pillar study. The study scoped out the options and the approach for linking learning outcomes of qualifications with ESCO skills.

Following testing on eight qualifications, the study concluded that automated linking is possible but that human intervention is needed to correct for errors. It proposed to further test the use of an automated approach based on methods for Natural Language Processing and the contribution of experts who are familiar with the content of the qualifications.

Based on the outcomes of the study and following the discussion held during the 7 February meeting of the ESCO Member States Working Group, the Commission launched a pilot project for testing the linking in different EU languages of qualifications with different EQF levels and in different subject areas and for defining potential requirements. The Commission built a user-friendly IT tool to support the linking process.

The Netherlands, Poland and Slovenia participated in the project, while Latvia and Romania joined as observers. The development of the first version of the IT tool followed requirements of participating Member States and lasted three months. Participating countries used the IT tool to link learning outcomes of qualifications to ESCO skills. The final results of the project were presented during a second workshop on 10 December 2019, which marked the end of the pilot.

The project confirmed the relevance of an approach combining technological developments (Machine Learning) and human intervention to link qualifications with ESCO skills, helping to bridge the distance between the terminology used in the world of education and training and the vocabulary of the labour market. At the same time, it offered useful feedback on the granularity and level of detail of ESCO in different sectors/fields and showed that qualifications can be indirectly linked via skills with occupations, thus further enriching the information associated to qualifications.[6]

At the same time, under the umbrella of the Digital Education Action Plan, a pilot project implemented by the Commission's Directorate General for Education, Youth, Sport and Culture (DG EAC) and the Directorate General for Informatics (DG DIGIT) tested the use of ESCO to create links between the skills acquired in specific educational

[6] The IT tool was presented in a webinar on 14 October 2019. It is based on three key functionalities:

- Split of learning outcomes description texts into separate conceptual entities.
- Provision of suggestions of matching ESCO skills through a Machine Learning algorithm.
- Exporting a list of ESCO skills concepts that relate to the learning outcome of a qualification.

programmes and those required in the labour market. The project linked ESCO skills with the skills contained in the syllabus of bachelor and master programmes of six universities across Europe. Results helped visualise the occupations to which specific programmes can lead and identified how programmes can respond to the skills needed in specific occupations.

4.3.2 Exploring the international dimension of ESCO

ESCO was developed to support interoperability at EU level. However, recent synergies with non-EU countries point to cooperation between the Commission and classifications of non-EU countries. This involves exchange of best practices on issues pertinent to the development and maintenance of classification systems and can potentially develop correspondences between ESCO and these classifications. The latter field of cooperation is particularly useful for those ESCO implementers who have been using international classifications prior to or at the same time as ESCO. Such cooperation will be implemented in the first place through online tools like a collaborative space in the ESCO portal, to be developed in the coming months.

In view of the use of O*NET as input to the development of a hierarchy for the ESCO skills pillar, a meeting took place in May 2019 with the US Department of Labour (DOL) with representatives from the National Centre for O*NET Development and the Bureau of International Labour Affairs. The objective was to look at potential links between O*NET and ESCO and exchange best practices related to the maintenance of classifications.

A meeting in April 2019 with the Korean Employment Information Service (KEIS) followed the Commission's participation in the KEIS International Conference on Active Labour Market Policies in 2018.

Finally, other non-EU countries are interested in using ESCO in their national labour markets. For example, Armenia intends to use ESCO as a basis for a platform to link occupations, skills and qualifications of the national labour market and education and training area. The Public Employment Service of Malaysia is also looking into ESCO's implementation.

5. Managing ESCO

5.1 Developing an ESCO skills hierarchy

In 2019, following discussions with the ESCO Member States Working Group and the ESCO Maintenance Committee, the Commission engaged external experts to support the development of a hierarchy for the 13 485 skills and knowledge concepts of ESCO. The skill and knowledge hierarchy will enable users to search and retrieve the ESCO skill and knowledge concepts systematically for a variety of purposes and will support the matching of jobseekers with job vacancies. The new ESCO skills hierarchy can also facilitate the mapping exercise foreseen in Commission Implementing Decision (EU) 2018/1020 on the adoption and updating of the list of skills, competences and occupations of the European classification for the purpose of automated matching through the EURES common IT platform[7]. However, the use of the hierarchy is not compulsory for this mapping exercise or any other purpose in relation to EURES.

[7] OJ L 183, 19.7.2018, p. 17.

The new ESCO skills and knowledge hierarchy is a single all-embracing hierarchical framework containing four distinct sub-classifications:

- Knowledge
- Skills
- Attitudes & values
- Language skills and knowledge.

Knowledge

The 2 903 ESCO knowledge concepts were allocated to the eighty detailed fields of education defined in the International Standard Classification of Education, Fields of Education (ISCED-F). This classification was adopted as the organising framework for the knowledge concepts within the ESCO Skills and Knowledge hierarchy.

Attitudes and values

Attitudes and values are grouped according to the structural arrangement laid out already in the transversal section of ESCO's skills pillar. It is represented as a three-level hierarchy with separate categories for Attitudes and for Values at the top level.

Languages

The Languages section of the hierarchy is also represented as a three level hierarchy but has only one category at the highest level - Language skills and knowledge. This facilitates smooth integration with the other sections of the hierarchy.

Skills

The approximately 10 000 skill/competence concepts that are not included in the Attitudes and Values or Language sections of the hierarchy are classified in a 3-level skills hierarchy. The first and second levels were developed by using some of the groups of the Canadian Skills and Knowledge glossary. The latter's terms were adapted in order to cover the total number of ESCO skills. The third level was created by using the groupings of US O*NET and clustering concepts of the ESCO skills pillar. Usability tests with various stakeholders and implementers of ESCO are taking place during 2020, in order to identify potential issues.

The hierarchy was published on 8 May 2020 on the ESCO website[8].

5.2 Translation of ESCO concept descriptions

The Commission translated the descriptions of occupations, skills and knowledge concepts from English to all ESCO languages (the 23 official languages of the EU plus Arabic, Icelandic and Norwegian). The content of the descriptions has been quality assured during the translation process, with a team of experts supporting the translators in the terminological analysis of the text. As a further quality assurance step, Member States were consulted on the translated descriptions before publication on the ESCO portal.

6. Towards ESCO v1.1

[8] https://ec.europa.eu/esco/portal/home.

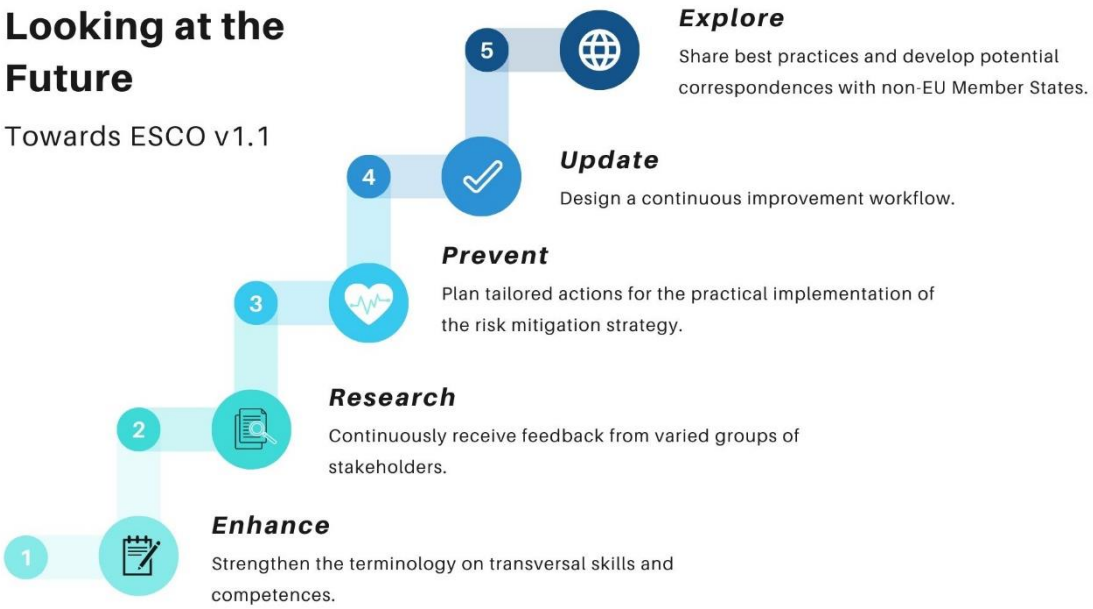


Figure 6. Towards ESCO v.1.1

6.1 Scoping ESCO's next major version v1.1

Only if ESCO is continuously updated will it remain fit-for-purpose for use by people and by various IT applications that deliver services to end-users (job seekers, employers, learners, education and training providers, career counsellors, etc). The labour market and education and training are permanently changing and these changes need to be reflected in new versions of the ESCO classification.

In this context and with a view to publishing the updated ESCO classification in December 2021, the Commission has defined a continuous improvement workflow for improving ESCO's content. The figure below shows an overview of the cycle of this continuous improvement process, which forms the basis for preparing and delivering ESCO v1.1. In 2019, the Commission focused mainly on the preparation and scoping phases of the improvement process.

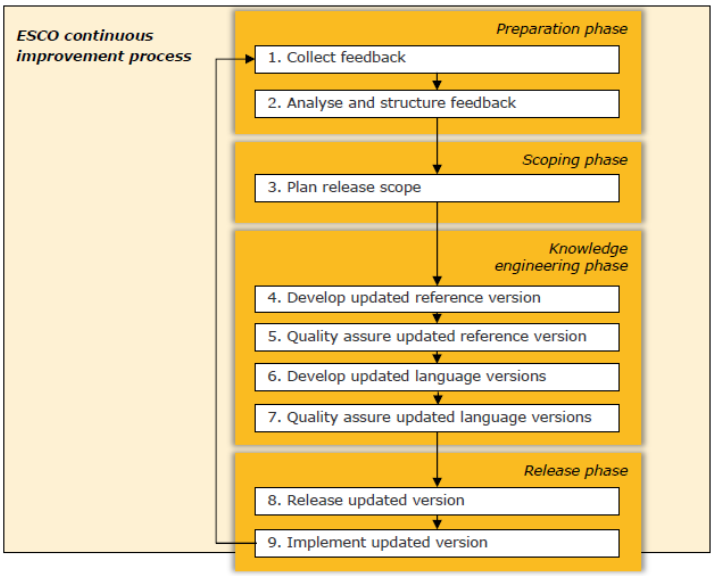


Figure 7. ESCO continuous improvement process

6.1.1 Scoping phase

In view of improving the classification, DG Employment, Social Affairs and Inclusion has been collecting feedback from different sources. This is an ongoing exercise which will conclude in autumn 2020:

- Contacts with other European Commission Directorates General: all Directorates General have been contacted for feedback on their domains, involving domain leaders in order to make use of the sectoral expertise available inside the Commission.
- Big data analysis: CEDEFOP's big data project for online job vacancies offers detailed information on jobs and skills required by employers in online job vacancies[9]. This is a valuable source of information for ESCO. By analysing these data, the Commission and CEDEFOP will determine if the occupational profiles of the classification are relevant to the labour market.
- Online fora: The ESCO community fora were officially launched on 1 March 2019. Four different online communities facilitate communication with different ESCO stakeholders and offer a single place for questions on how ESCO can be used and to discuss how to improve the content of the classification. By December 2019, 572 users had registered to the fora, among which 64 ESCO implementers, 20 members of the ESCO Maintenance Committee, 306 domain experts and 39 representatives of the Member States. The fora hosted 105 open discussions, with over 500 threads published across the four communities.
- Surveys: In parallel to the activity of the fora, as of July 2019 the Commission circulated targeted surveys to different contributors. The surveys aimed at collecting input from different users/beneficiaries of ESCO regarding potential improvements

[9] Skills-OVATE: Skills Online Vacancy Analysis Tool for Europe: www.cedefop.europa.eu/en/data-visualisations/skills-online-vacancies. ESCO is used in this project for extracting and classifying information on skills that is contained in the online job vacancies.

to the classification: domain experts, Public Employment Services mapping to or adopting ESCO, implementers from the private sector, and stakeholders of the Blueprint for sectoral cooperation on skills. The questionnaires included questions related to the coverage of respective sectors in ESCO, feedback on occupations and skills (duplicates, scope of concepts, descriptions and terminology used) and suggestions for new occupations and/or skills. A preliminary analysis of the results showed that implementers from the private sector have a general appreciation of both the technical infrastructure and the content of the skills pillar, while domain experts recognised a good value of completeness in the occupation pillar. Stakeholders also provided a considerable number of suggestions, including proposals on specific lacking skills, calls for a continuous improvement due to technological innovations and country-related labour market issues. The information collected by the surveys will be analysed during the course of 2020 in the context of the work for ESCO v1.1.

- Social partners: Social partners are key contributors in the continuous improvement process of ESCO, due to their knowledge of the occupations and skills needed in specific sectors and their expertise in designing sectoral training modules for the upskilling and reskilling of the workforce. Building on the opportunities offered by the Social Dialogue Committee, dedicated presentations of ESCO were organised within the Social Dialogue Committees of the Industrial Cleaning, Audio-visual and Live Performance sectors following requests by those sectors. Regular contacts with these and other sectors are kept during 2020 in order to collect feedback in view of ESCO v1.1.

- Other sources: In addition to the above-mentioned sources of feedback, the Commission is taking into account the results of the pilot project on linking learning outcomes of qualifications to ESCO skills (see point 3.3 above). This input is important to ensure that ESCO is fit for purpose to bridge the gap between education and the labour market.

  The Commission is also carrying out research in academic papers and trends in the labour market and exchanges with experts on classifications. For instance, a Knowledge exchange workshop with VDAB took place on 21 October 2019 in order to learn and exchange expertise, evidence and ideas.

  Finally, discussions in the ESCO Maintenance Committee and the Member States Working Group serve as guidance for improvements and steer the continuous improvement cycle.

The feedback received can be grouped in two main areas:

1. Content suggestions: missing occupations, improved translations, emerging skills, etc.

2. Structural changes/challenges: improved visualisation of ESCO, content quality and consistency challenges, stakeholder communication, etc.

Based on this feedback, different challenges and areas of improvement have been identified and discussed in various workshops in the ESCO Maintenance Committee and the Member States Working Group.

As regards timing, the main effort in the knowledge engineering phase is taking place during 2020. However, some knowledge engineering effort was already done in 2019; the creation of the skills hierarchy presented an excellent opportunity to get a better understanding of the more than 10,000 concepts and to identify skills improvements.

Overall, the goal is to deliver ESCO version 1.1 at the end of 2021 because Member States are in the process of mapping their national classifications to ESCO by August 2021, therefore ESCO needs to remain stable throughout the mapping process.

6.2 Improving the transversal skills thesaurus

Transversal skills and competences are at the forefront of discussions on the future of work and of education and training. Not specifically related to any particular job, occupation or sector, these skills and competences are deemed essential for our ability to respond to changing technologies, economies and societies. Transversal skills are supported by the 2020 Skills Agenda as important to accompany the digital and green transitions. In particular, they are part of Action 3 on EU support for strategic national upskilling action, Action 4 for a proposal for a Council Recommendation on Vocational Education and Training for sustainable competitiveness, social fairness and resilience, Action 6 on skills to support the twin transitions, and Action 7 on increasing STEM graduates and fostering entrepreneurial and transversal skills.

As part of the initial (2011-2013) development of the ESCO skills pillar, a detailed list of transversal skills and competences was developed and included in the current version of ESCO. However, based on experience of applying this terminology, a further improvement is required.

To this end, the Commission, in close cooperation with CEDEFOP, established a group of experts to systematically develop and extend the existing terminology in light of empirical evidence from different use-cases and applications (validation, qualification design, HR-management). The group pays particular attention to the intuitive logic of the terminology, its comprehensiveness and precision.

This revision is part of the overall work on the next major version of ESCO which will be published in December 2021 and will include all new occupations and skill and knowledge concepts that emerged since the release of the current ESCO in July 2017. It is also part of the work on the ESCO skills pillar, notably the introduction of a better structuring of the 13 485 skill and knowledge concepts.

This exercise will result in a strengthened ESCO terminology on transversal skills and competences, which will act as a terminological reference point and resource for a wide variety of ESCO use cases addressing education and training as well as work.

7. Communicating ESCO

7.1 Digital labour market country events

During 2019, the Commission worked with Member States to communicate at national level on policy initiatives in the digital labour market.

In particular, following invitations by the respective Member States, the Commission worked together with representatives in the ESCO Member States Working Group to organise country events gathering all relevant stakeholders in order to exchange views on initiatives such as ESCO, the European Qualifications Framework (EQF) and the new Europass, their technical features and planned updates and how they can be concretely implemented in the national context.

Such country events aim at presenting:

- EU policy goals in the context of the digital labour market;
- the technical aspects and current developments of ESCO;
- the policy aspects of the EQF;
- the technical features and services of the new Europass and the European Digital Credentials Infrastructure (EDCI).

These events bring together a wide range of stakeholders: Ministries of Labour, Social Policies and Education, national agencies responsible for digital policies, public and private employment services, national institutes of statistics, regional and local authorities and municipalities, trade unions and business and crafts associations, higher education institutions, vocational education and training providers, HR vendors, digital platforms and start-ups offering labour market related services.

In 2019, the following country events were organised:

Country	Date
Greece	23-24 January
Slovenia	12-13 March
Poland	2-3 April
Cyprus	26-27 June
Italy	24-25 October

7.2 ESCO technical study visits

For the purpose of better understanding the needs and experiences of ESCO implementers and collecting feedback on ESCO's continuous improvement, the Commission has been conducting study visits to companies and organisations which have experience of using ESCO in their services.

The study visits aim to:

- get a more in-depth understanding of how ESCO is used in the market, in particular in business cases and provided services;
- put the current Key Performance Indicators (KPI) framework in practice by collecting data from implementers of ESCO, in order to assess ESCO's performance;
- potentially, improve the KPI framework with additional indicators suggested by the implementers of ESCO; and
- get any additional feedback on how ESCO could be improved.

In 2018 and 2019, the following study visits were organised:

Organisation	Country	Date
Textkernel	NL	29/11/2018
EURES	BE	14/12/2018
Docebo	IT	11/02/2019
Boost.rs	FR	18/06/2019
Milch & Zucker	DE	15/11/2019

During the visits, the Commission learned about each implementer's business model and how they use ESCO to deliver services, and collected feedback on their satisfaction with ESCO and elements for further improvement.

7.3 Promotional material

Communicating and raising awareness about ESCO is important to support its take-up. To this end, the following material was produced: ESCO infographics, the ESCO and the Digital Labour Market video and Key performance indicators for the continuous improvement of ESCO. Finally, an ESCO implementation fiche was produced and distributed to ESCO implementers, to allow a more in-depth understanding of the organisations using the classification, the services that they offer and the benefits they see in using ESCO (these fiches are presented in chapter 4.1.1).

8. Next Steps

The adoption of the 2020 Skills Agenda underlines ESCO's significant role in the digital labour market as it puts forward a number of actions powered by ESCO: the new Europass, the Skills-OVATE project of CEDEFOP, the Blueprints for sectoral cooperation on skills and the transversal skills for the green and digital transitions. Therefore the successful publication of the next major release of ESCO (ESCO v1.1) is of crucial importance. In this context, during 2020 the Commission has already received contributions for updating the classification and will continue working in partnership with social partners, Member States, education and training providers and civil society to get as much input as possible. This process will result in a draft that will include new occupational profiles, new skills and improvements of the current content. The draft will be submitted for consultation to Member States at the end of 2020.

The skills pillar will continue to be a major strand of work in 2020. The Commission has published a hierarchy for the skills pillar in first semester 2020 and will work together with implementers to further improve it. In parallel, the updated transversal skills hierarchy will be developed. Special attention will be given to skills for the green transition, in line with priorities under the Green Deal for Europe.

The multilingual aspect of ESCO will also be reinforced in 2020, with the publication of descriptions of occupations and skills translated into the 27 ESCO languages.

The launch of the new Europass in mid-2020 will come together with some changes in the ESCO dataset. Data on qualifications (the current qualifications pillar) will be hosted in the new Europass portal, in a single repository. ESCO will continue supporting the goal of bridging the gap between education and the labor market by providing a common language. In this context, the Commission will continue testing the link between ESCO skills and learning outcomes of qualifications via new pilot projects.

Member States will continue the mapping process foreseen by Article 19 of the EURES Regulation and the Commission will continue providing the relevant technical assistance. In this regard, the Commission will keep collecting as much feedback as possible to improve ESCO and to support different stakeholders in its implementation.

Last but not least, the Commission is exploring the potential of Artificial Intelligence (AI) to improve the management of the ESCO classification and to develop applications making use of it. For ESCO to fulfil its mission in the labour market, technological innovations in knowledge management could possibly add value. In this regard, AI technology has the advantage of scalability, making it economically more interesting and arguably closer to the reality of the labour market. Since managed classifications require significant maintenance to stay current with developments in the labour market and provide transparency, the future of AI and ESCO is likely to be one of coexistence.

Annex 1: Promoting ESCO

Participation in workshops and conferences

One of the main channels for promoting the use cases of ESCO in a broad range of stakeholders and potential implementers is the participation in events and conferences. The Commission throughout 2019 presented ESCO in a significant number of conferences and events:

- EUandU conference, Athens, 29-30 January 2019
- Recruitment Agency Expo, London, 5-6 February 2019
- Kick off meeting FLIP Project for CCIs, Brussels, 19 February 2019
- E-Learning expo, Paris, 19-21 March 2019
- Peer Learning Activity on qualifications Databases, Budapest, 21-22 March 2019
- FLIP opening conference in Athens, 11-12 April 2019
- TAtech Europe 2019, Lisbon, 9-10 May 2019
- European Distance and E-Learning Network (EDEN) Annual Conference 2019, Bruges, 18 June 2019
- Zukunft Personal Europe, Cologne, 17-19 September 2019
- Decentralized 2019, Athens, 30 October - 1 November 2019
- European Training Foundation's conference: Benefits for people, Milan, 6-7 November 2019
- Milch & Zucker conference 'Fusion days', Giesen, 12-13 November 2019
- Skills for the future, Nicosia, 19 November 2019
- Design of EO and Related Curricula, Warsaw, 27 November 2019
- OEB global, Berlin, 27-28 November 2019
- EUandU conference Thessaloniki edition, Thessaloniki, 29-30 November 2019
- Using Natural Language Processing in the field of Occupations, Qualifications and Skills – a peer learning seminar, Warsaw, 13 December 2019

Annex 2: ESCO governance bodies

Meetings of the ESCO Maintenance Committee

The ESCO Maintenance Committee (MAI) is a technical advisory body, composed of experts with knowledge on classification systems, terminology of the labour market and the education and training area, and European/international standards. The MAI provides advice on the continuous technical and conceptual improvement of ESCO, on its technical implementation and on the quality control of ESCO's content.

The MAI held four meetings in 2019. Two main topics were predominant: the new structure of the skills pillar and the updating process towards ESCO v1.1.

The 29th MAI meeting took place on 29 March 2019. It covered the new ESCO skills hierarchy and the feedback mechanism in the context of the continuous improvement of ESCO. The Commission updated the MAI on the different stages and work packages for ESCO v1.1 and CEDEFOP presented the results of the project for big data analysis from online vacancies.

The 30th MAI meeting took place on 24 May 2019. The discussion covered the first draft of the ESCO skills hierarchy and its use cases. The MAI members worked with the draft of the hierarchy by allocating a sample of skills, which allowed them to provide feedback for improvement. The Commission also informed the MAI on the state of play of the pilot project for linking learning outcomes of qualifications to ESCO skills.

The 31st MAI meeting took place on 20 September 2019. The meeting covered the updated draft of the ESCO skills hierarchy and the results of the allocation of knowledge concepts to ISCED-F. There was also an exchange on a usability testing of the skills hierarchy. Finally, the Commission presented the draft risk management plan for ESCO v1.1 and asked the MAI for feedback.

Finally, the 32nd MAI meeting took place on 12 November 2019. During the meeting, the Commission updated the MAI on the progress of the allocation of skills to the skills hierarchy, on the progress of the work carried out by the transversal skills expert group and on the main challenges identified for ESCO v1.1 following feedback received by different stakeholders.

Meetings of the ESCO Member States Working Group

The Member States Working Group on ESCO (ESCO MSWG) is composed of representatives from Member States and European Economic Area (EEA) countries in the areas of employment as well as education and training affairs, and representatives of social partners. Its aim is to support the development and implementation of ESCO, including its links with the EURES regulation.

The ESCO MSWG met three times in 2019.

A joint meeting of the ESCO MSWG and the EQF Advisory Group took place on 6 February 2019. The meeting was dedicated to presenting the result of the study on the ESCO qualification pillar and to discuss the topic of transversal skills. During the meeting, the Commission updated the EQF and ESCO communities on the future actions for promoting digitally signed credentials in the new Europass.

The 9th ESCO MSWG meeting took place on 7 February 2019. During the meeting, the Commission provided an overview on the work for structuring the skills pillar and on the framework for collecting key performance indicators, presented the concept of the pilot project for linking qualifications with ESCO skills and informed Member States on the state of play of the ESCO community fora.

Finally, the 10th ESCO MSWG meeting took place on 8 October 2019. During the meeting, the Commission provided updates on the future of the ESCO qualifications pillar, on the preliminary version of the skills hierarchy and on the planning of the work for ESCO v.1.1.

Annex 3: ESCO IT Ecosystem

ESCO is supported by several IT tools used for the maintenance of the classification. These tools allow, for instance, to update the classification, to collect qualifications, to translate the terms in different languages, to publish ESCO or to maintain the correspondence tables resulting from the mapping process. The Commission is updating the IT infrastructure on a continuous basis to better meet the needs of the users. The main components updated in 2019 are described below.

The mapping platform

The mapping platform allows Member States to create, update and manage their mappings and to publish correspondence tables. Access is granted to Member States as part of the technical support foreseen in the EURES Regulation. In 2019, the Commission improved the usability of the mapping platform by implementing new functionalities, following initial feedback from users. These functionalities include a more detailed dashboard allowing to better follow the process of mapping, suggestions of missing ESCO concepts, a single table view to better inspect the resulting mapping and new search and filtering options.

The translation management platform

The translation management platform is a software component that allows translators to manage translations and terminological work from English to other languages. The platform was developed in 2019 and can now be used for upcoming translations of ESCO terms. In the context of the ongoing cooperation with the Commission's Directorate General for Translation (DG DGT), the translation management platform will be updated with further functionalities like translation suggestions based on past translations.

The taxonomy management system

The taxonomy management service is used to manage the English reference version of ESCO. The platform allows creating new skills or occupational profiles, to merge concepts, to update descriptions of existing occupations or to move occupations between ISCO groups.

The ESCO service portal

The ESCO service portal provides general and technical information about ESCO and allows users to browse, search and download the classification. Updates of the portal in 2019 included an update of the ESCO Application Programming Interface (API), allowing to visualise genders of labels, new download files of ESCO containing the full ESCO model in spreadsheet form and an alignment with the Commission's policy regarding cookies.

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