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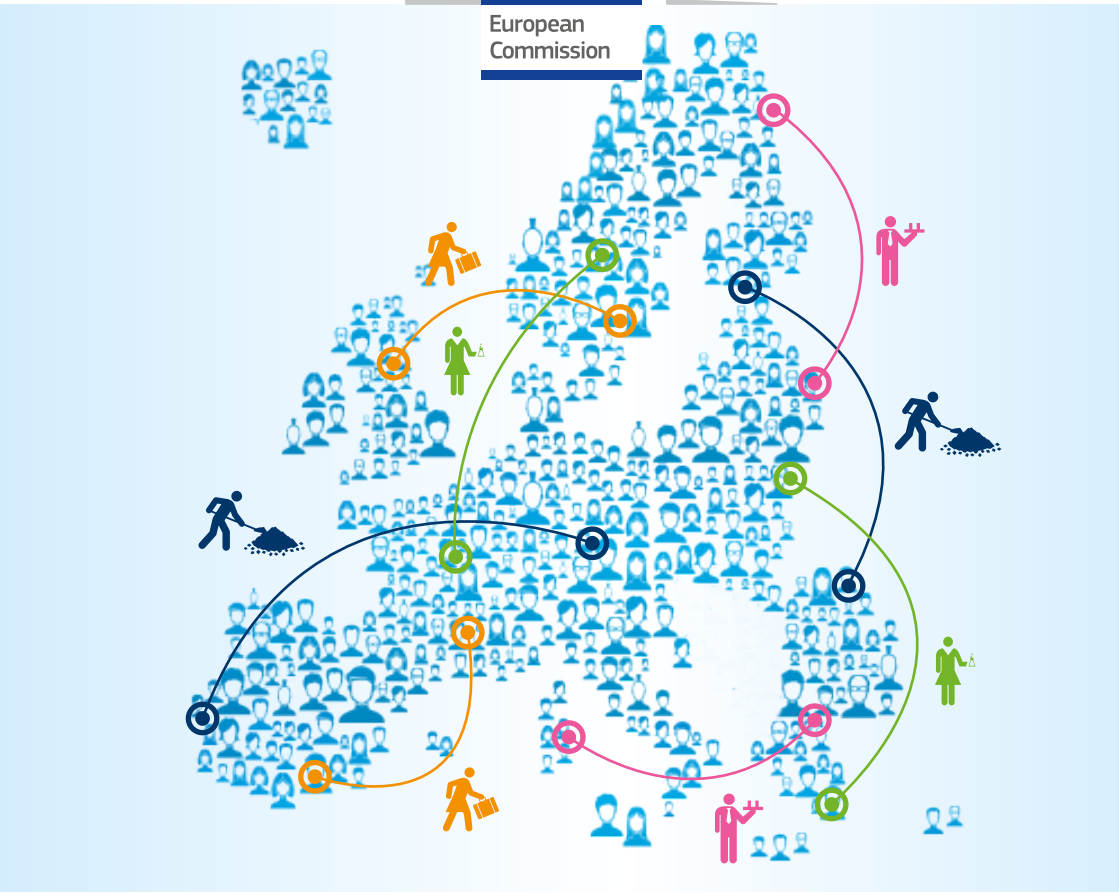

ESCO

European Classification of Skills/Competences, Qualifications and Occupations

The first public release

A Europe 2020 initiative

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What is ESCO?

ESCO is the multilingual classification of European Skills, Competences, Qualifications and Occupations. It identifies and categorises skills, competences, qualifications and occupations relevant for the EU labour market and education and training, in 25 European languages. The system provides occupational profiles showing the relationships between occupations, skills, competences and qualifications. ESCO has been developed in an open IT format, is available for use free of charge by everyone and can be accessed through an online portal.

Why ESCO?

To help bridge the gap between the world of education and training and the labour market, the European Commission is developing ESCO. By introducing a standard terminology for occupations, skills, competences and qualifications, ESCO can help education and training systems and the labour market to better identify and manage the availability of required skills, competences and qualifications. Its multilingual character facilitates increased international transparency and cooperation in the area of skills and qualifications.

The financial crisis has hit labour markets throughout the European Union. In June 2013 the overall unemployment rate in the EU stood at 11 %, while youth unemployment rose to more than 23 % and reached more than 55 % in some member states.

In spite of high levels of unemployment, there is strong evidence of skills bottlenecks and mismatches within certain regions and sectors such as the green economy, ICT and healthcare. A globalised economy increases competition not only in relation to labour costs but also in relation to the skills of the workforce. Europe cannot afford to leave skills potential unused.

Getting people into work requires tackling skill shortages and mismatches. Workers need training to meet the needs of the labour market and job matching services need to make the most of available employment opportunities.

However, education provides people with qualifications that differ between Member States. Qualifications do not always keep pace with the evolution of knowledge, skills and competences needed by the labour market. Employment services do not share the same IT and classification systems to manage information on the supply and demand of jobs.

What can ESCO do?

- Facilitate the dialogue between the labour market and the education/training sector.
- Allow employment services to exchange relevant labour market information across borders.
- Boost online and skill-based job-matching.
- Facilitate geographical and occupational mobility through semantic interoperability (see p.8).
- Help employment services in the shift towards a skills and competences-oriented approach.
- Help describe qualifications in terms of knowledge, skills and competences.
- Enable the development of innovative career guidance services.
- Ultimately: getting more people into jobs throughout Europe!

ESCO supports other initiatives developed by the European Commission aimed at making labour market and education systems more transparent, stimulating mobility and creating opportunities.

- EURES, the European Job Mobility Portal
  This online portal allows public employment services to share their vacancies at a European level and reach out to workers beyond national borders.

- Erasmus+
  The Erasmus + programme enables (young) Europeans to study in another Member State and bring new skills and competences back to their country of origin.

- The European Qualifications Framework (EQF)
  The EQF aims to increase the comparability of levels of qualifications across borders.

- Europass-CV
  This multilingual tool provides a European template for the description of the holder's skills, competences, qualifications and professional achievements.

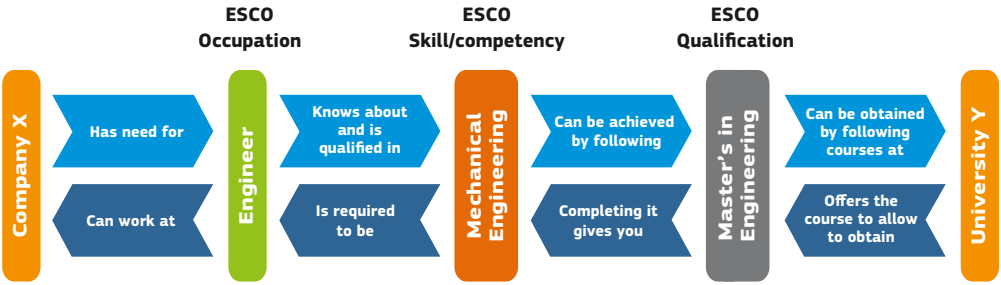
How does ESCO benefit European citizens?

Jobseekers can use ESCO to describe their skills, competences and qualifications when developing their CV, which can then go through various automated matching processes. They can also compare their skills, competences and qualifications against job vacancies using ESCO terminology, to identify the skills they are lacking.

- Employers can use ESCO to define the set of skills, competences and qualifications their vacancies require when they are developing a job description.
- Learners, whether already employed or not, can use it to record their learning outcomes, whether acquired through formal, non-formal or informal learning and build personal knowledge, skills and competences profiles.
- Workers and learners can use the ESCO Occupational profiles to help identify "skills gaps" against target occupations.
- Education and training institutions can use ESCO in curriculum development and assessment.
- Other organisations developing and/or awarding qualifications can use ESCO to express the learning outcomes of their qualifications, to reflect emerging skill needs and to facilitate the understanding of their qualifications across borders.
- Human resources managers and people offering career guidance can use ESCO to enhance planning and make aptitude or ability tests and skills and interest inventories more accurate.
- Employment services can use ESCO to exchange relevant labour market information (CVs and vacancies) in a meaningful way.

- Trade unions and Professional Associations can use ESCO to help improve job design, the content of qualifications and opportunities for mobility.
- Software developers can use the ESCO Occupational profiles to develop new Career Information and Guidance (IAG) tools, such as career pathways.
- ESCO will help employers, jobseekers and labour market stakeholders such as public and private employment services to access a larger number of CVs or job vacancies.

ESCO in practice

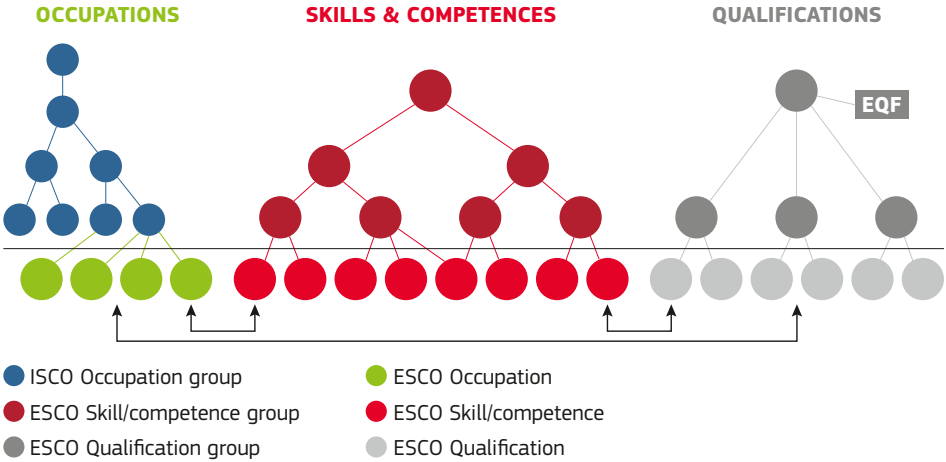


ESCO bridges the communication gap between education and work

The labour market is constantly evolving. The specific occupations, skills, competences and qualifications that people need change over time, as does their description. To cope with this, effective communication and dialogue between the labour market and the education/training sector is vital. To facilitate this dialogue, ESCO is structured on the basis of three pillars representing a searchable database in 25 languages. These pillars are:

- Occupations,
- Skills/competences, and
- Qualifications.

More importantly, the pillars are interlinked to show the relationships between them. Occupational profiles show whether skills and competences are essential or optional and what qualifications are relevant for each ESCO Occupation. Alternatively, the user can identify a specific skill and see which occupation or qualification this skill is relevant to.



The three pillar approach

This structure allows ESCO to organise the available knowledge of the European labour market and the education/training sector in a consistent and usable way. ESCO is developed in an open IT format that can be used by third parties' software. The classification is accessible and freely downloadable via the ESCO Portal. This will allow the development of new services.

ESCO – better online matching of people to jobs

Job matching is increasingly carried out on the web, allowing for a more efficient approach. Not only does online job matching provide job seekers with a wide range of relevant opportunities, it also helps employees to identify new career paths and show what transferable skills they have between occupations.

Job matching based on skills and competences

Extracting the relevant information from online job vacancies and CVs is only the first step. For successful job matching based on skills and competences, it is also necessary to analyse and interpret this information correctly. ESCO's structure of three interlinked pillars can help IT systems achieve this.

ESCO contains a typical skill and competence set for each occupation and information on relevant qualifications. It will enable IT systems to transform a jobseeker's work experience and qualifications into a likely set of skills and competences. This enables a user to draw conclusions about the skills and competences a jobseeker might have or the ones that might be relevant for a vacant job post. This way ESCO helps create a more precise picture of the skills and competences of a person that could be used directly for job matching. Based on these conclusions, the IT system can more accurately and transparently match jobseekers to job vacancies or employers to potential recruits.

ESCO's primary objective is to contribute to better skills-based job matching online. It does so, by:

- Offering people the possibility of compiling CVs and vacancies using ESCO's vocabulary in 25 languages, enabling them to exchange information across borders.
- Providing a tool for the automated analysis and interpretation of semi-structured and unstructured data (CVs and vacancies).
- Supporting skills-based job matching on the grounds of an individual's work experience and qualifications.
- Shows how skills and competences developed in one occupation are applicable and transferable to another. i.e. cross sectoral skills and competences

ESCO – enabling mobility

In almost all European countries, employment and career guidance services use different national classifications, IT systems and languages. All these variations hinder the cross-border exchange of data.

Mapping national classification systems to ESCO increases semantic interoperability between them. ESCO translates information between different classification systems, functioning as a hub. By using ESCO, employment services will be able to exchange job vacancies, CVs and other meaningful information across the European Union. This will encourage occupational and regional mobility, reduce mismatches between labour market demand and supply and lower operating costs for employment service providers.

The ESCO Secretariat will support organisations willing to map their classification system to ESCO by providing mapping environment tools, documents and guidelines. Mapping to ESCO will allow them to achieve semantic interoperability with other actors on the European labour market while retaining their way of working, their classifications and their IT systems.

ESCO will be published as Linked Open Data (LOD), meaning that developers can use it as a building block in applications providing services such as job matching, career guidance and self-assessment tools to citizens.

Jargon busting

Semantic interoperability is the ability of two or more computer systems to automatically interpret any information exchanged in an accurate and meaningful way. To achieve semantic interoperability, both sides must use a common standard for information exchange.

LOD (Linked Open Data) refers to a set of best practices and patterns for hyper-linking and publishing computer-readable data on the public web, under open licenses that permit data reuse. Such data can be further linked to other data, generating connections for the user and putting him or her in touch with a much richer network of information. Therefore LOD enables a "browsing" or "discovery" approach to finding information, as compared to the usual "search" practice.

EURES Job Mobility Portal – a better service through ESCO

To employ the best person for the job regardless of where they are from, employers need to call on a wider pool of candidates. The EURES Job Mobility Portal is a key tool in enabling this. It hosts more than one million job vacancies from all over Europe, almost as many CVs, and thousands of registered employers. It helps those who wish to find a job abroad and offers European employers a variety of services and information covering every aspect of recruiting from other European countries.

Using ESCO to improve semantic interoperability will allow EURES' services to be fine-tuned, making them more relevant to the current demands of the labour market. By highlighting mismatches between CVs and vacancies, ESCO can help identify skill gaps and learning/training opportunities.

Once national systems are mapped, information that is transmitted to EURES can be based on ESCO. In this way EURES provides an exchange platform for CVs and job vacancies across Europe. Thanks to ESCO, these CVs and vacancies will contain more standardised and more detailed information covering knowledge, skills and competences, and qualifications.

ESCO is expected to become the backbone of the EU-wide exchange of labour market information.

EURES at your fingertips

EURES also offers its services on mobile platforms through its app, which is now available for download. Users can:

- Search jobs posted by all Public Employment Services in Europe, in any language.
- Mark jobs as 'Favourites' and easily access them later, or share them with friends.

- Find and contact EURES Advisers, who can provide personalised information and advice for job moves.
- Browse through upcoming events happening in Europe and add them to calendars.

The app covers the EU countries plus Iceland, Liechtenstein, Norway and Switzerland, and is available in 25 languages.

ESCO – supporting education and training in the shift to learning outcomes

ESCO, as a standardised terminology, will make it easier to describe how occupations, skills, competences and qualifications are linked and interact with each other. The 25 languages of ESCO will facilitate cooperation between countries and will support the mobility of learners between countries and systems.

ESCO developments reflect the on-going shift to learning outcomes currently taking place across Europe. The learning outcomes approach states what a jobseeker knows, understands and is able to do on completion of a learning process. It offers an alternative to the traditionally strong emphasis on learning inputs where a qualification is judged according to time spent in education, subjects studied and the location of the learning. Learning outcomes are commonly defined in terms of knowledge, skills and competences, thus sharing the basic terminological principles underpinning ESCO. This shared terminological core will facilitate the dialogue between labour market and education and training stakeholders within and across sectors and borders.

The European Qualifications Framework

The introduction of the European Qualifications Framework (EQF) has been a trigger for a shift to learning outcomes. The linking of national qualifications frameworks (NQFs) to the EQF is expected to be completed by 2014, thus signalling that the learning outcomes approach has been broadly accepted as the basis for future European cooperation in the area of education and training.

The introduction of the EQF, and the rapid development of NQFs, is increasingly influencing the writing of curricula and qualification standards, focussing on what a learner is expected to know, understand and be able to do. Increasingly we observe that this shift influences the way teaching and training is organised and assessment is carried out.

The introduction of a common European terminology will make it easier to describe, analyse and understand the relationship between education and training and the labour market in a number of ways:

- The learning taking place outside classrooms, in non-formal and informal settings, is of great importance to the individual, employers and society at large. The outcomes of this learning need to be identified, documented and assessed if they are to be taken into account. ESCO's terminology can directly support the systems of validation currently being set up by European countries. The introduction of a common terminology will help the individual describe prior learning, and also make it easier for employers and schools to see the value of these experiences.

- ESCO's terminology is of significant relevance to vocational education and training responding directly to the needs of the labour market. The multilingual character of ESCO will make it easier to understand developments in skills and competences in an international, and not merely a national or local, context.

- The introduction of a common terminology can be used to identify skills and competences needs. This will directly help increase the relevance and responsiveness of education and training to the labour market, both now and in the long term.

- Systems of testing and assessment need to reflect the shift to learning outcomes in qualifications and curricula. ESCO's terminology can underpin descriptions of assessment criteria and thus directly support qualification bodies at international, national and sectoral level.

- The European systems for the accumulation and transfer of credits in higher education (ECTS) and vocational education and training (ECVET) will benefit from a standardised language.

- A standardised and easily accessible terminology can be used by guidance and counselling professionals. The focus of ESCO on skills and competences not only makes it easier to describe existing capabilities but is valuable for identifying missing and transferable skills and competences of individuals.

ESCO – supporting skills intelligence and statistics

Throughout Europe, ESCO will open doors to the development of skills intelligence tools designed to improve the analysis of the skills and competences supply and demand. It will help create greater insight into people's skills and competences, providing more transparency regarding the available skills on the labour market today.

ESCO's occupations pillar is structured in a hierarchical way and linked to ISCO, the International Standard Classification of Occupations developed by the International Labour Organisation (ILO). This allows statistical data acquired through the use of ESCO to be comparable at international level.

ESCO can serve as a basis for other types of research, such as benchmarking and cross-country comparison.

The European Skills Panorama

A better understanding of the skills and competences that will be needed on the labour market in three, five or ten years from now helps education and training providers to adapt curricula accordingly.

The European Skills Panorama, launched in 2012, presents the required information. It is a flagship initiative of the "New Skills for New Jobs" agenda, jointly developed by the Directorate-Generals (DG) for Employment, Social Affairs and Inclusion and for Education and Culture of the European Commission with the support of Cedefop (European Centre for the Development of Vocational Education and Training).

The European Skills Panorama offers concrete information on which skills are needed by the labour market and those offered by the workforce. It helps identify the latest occupational trends and to analyse skills mismatches. The statistical analysis of a larger number of job vacancies will make it possible to identify short and long-term trends. As a common vocabulary, ESCO can be used for collecting, comparing and structuring data in the EUSP.

ESCO – Get involved

Shaping ESCO into an up-to-date, practical tool can only be done from the bottom up, through the active involvement of people from the education and training sector as well as from the labour market. Feeding into the development of classifications are: employers' organisations; trade unions; employment services; education institutions; training organisations; European sector skills councils and networks as well as government bodies.

DG Employment, Social Affairs and Inclusion and DG Education and Culture – supported by the European Centre for the Development of Vocational Training (Cedefop) – jointly coordinate the development of ESCO. They currently support the development of ESCO through the ESCO Secretariat which is responsible for the daily management and technical implementation of the project.

ESCO is managed and supported by several bodies:

- The **ESCO Board** is made up of senior representatives from the stakeholders most directly concerned and provides the project with strategic guidance.

- The **ESCO Maintenance Committee** consists of technical classification experts. It develops the methodology for the development of ESCO together with the ESCO Secretariat and monitors the quality of the final product.

- The **Sectoral Reference Groups** are composed of sectoral experts from the labour market and education and training sectors. In total, 27 Sectoral Reference Groups develop the content of ESCO by defining occupational profiles, sector specific skills and competences and qualifications for their sector of the economy.

- The **Cross-Sector Reference Group** consists of experts in employment and education, related standards and classifications and an up-to-date knowledge of relations between education and training and the labour market. It deals with transversal skills and competences, the consistency of the skills and competences pillar and its relation to the qualifications pillar.

Anyone interested in becoming involved or learning more about how to develop ESCO can contact the ESCO Secretariat: empl-esco-secretariat@ec.europa.eu

ESCO Reference Groups at a glance

The Cross-Sector Reference Group has developed a structure and vocabulary for transversal skills and competences that apply to more than one sector. These concepts, and the way they are structured, are regularly checked to ensure they are relevant to the context of occupations and economic sectors.

The Sectoral Reference Groups develop the content of ESCO for their sectors of economy and validate it through their professional network. The overview below shows the Sectoral Reference Groups that together will cover all parts of the economy.

Identify your group

The Sectoral Reference Groups are organised on the basis of the European classification of economic activities called NACE. Anyone interested in contributing should consult the NACE classification codes indicated in the table to see which Sectoral Reference group they fit into.

For more information on NACE see:
http://ec.europa.eu/competition/mergers/cases/index/nace_all.html

The following table lists the ESCO Sectoral Reference Groups together with their corresponding NACE rev. 2 codes

Agriculture, Forestry, Fishery (A)
Hospitality and tourism (I, N79)
Human health and social services activities (Q)
Manufacturing of textile, apparel, leather, footwear and related products (C13, C14, C15)
Wholesale, retail trade and rental and leasing (G, N77)
Veterinary activities (M75)
Mining & Heavy Industry (B, C19, C24)
Manufacturing of food, beverages and tobacco (C10, C11, C12)

Arts, entertainment and recreation (R)

Transportation and storage (H, N8292)

ICT Service activities (J61, J62, J63)

Manufacturing of electrical equipment, computer, electronic and optical products (C26, C27)

Manufacturing of transport equipment (C29, C30)

Business administration (M69, M70, M73, N82 except for 8292)

Construction (F)

Energy and water supply, sewerage and waste management (D35, E)

Education (P)

Personal service -, administrative support service- and security and investigation activities (S95, S96, T97, T982, N78, N80, N81)

Scientific and technical activities (M71, M72, M74)

Manufacturing of consumer goods except food/beverages/tobacco/textile/apparel/leather (C31, C32, T981)

Wood processing, paper and printing (C16, C17, C18)

Chemical industry (C20, C21, C22, C23)

Fabricated metal products, except machinery and equipment (C25)

Machinery and equipment, except electrical equipment (C28, C33)

Media (J58, J59, J60)

Finance, insurance and real estate (K, L)

Public administration and defence and membership organisations (O, S94, U)

ESCO v0 ready for use

ESCO v0 is the first public release of ESCO. This version is based on the EURES classification but includes an enhanced semantic structure, transversal skills and competences and an initial small sample of qualifications. It includes the results of the Cross-Sector Reference Group, but not any sectoral updates as yet.

ESCO v0 contains around 4800 occupations, more than 5000 skills/competences as well as some qualifications. As each element in ESCO exists in 25 languages this amounts to more than 250000 terms.

The qualifications pillar in ESCO v0 contains a small sample list of qualifications regulated at European level, international qualifications and certificates and licences linked to tasks, technologies, occupations or sectors. The list will be further developed in the next releases of ESCO. In addition, National Qualifications databases developed by the Member States and referenced to the EQF will, in the future, feed into ESCO.

ESCO v0 is released in October 2013. It is published on the ESCO portal, free of charge for everyone and can be visited here: https://ec.europa.eu/esco

The work of the Sectoral Reference Groups and the Cross-Sector Reference Group will lead to a complete revision of ESCO v0, covering all sectors of the economy. Final work results will be published continuously until a final version (ESCO v1) becomes available in 2017.

The ESCO portal

The ESCO portal provides visitors with the opportunity to browse and search the classification by occupation, skills and competences, and qualifications. They can download ESCO data, free of charge, in a variety of formats and access background information along with the latest developments and news about the project.

Information can be browsed by occupations, skills and competences, qualifications or alphabetically. The portal also allows users to give feedback on ESCO and make suggestions relating to the classification's content.

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ESCO – boosting job matching throughout Europe

European prosperity depends on a flourishing labour market which helps both working people and employers make the most of training and skills. EU citizens have an EU-wide labour market open to them and employers have a pool of people in 28 countries to choose from. However, matching the right worker to the right job remains a challenge.

ESCO is a multilingual classification of occupations, skills, competences and qualifications, designed to help jobseekers and employers to match skills to jobs. Learners, workers and businesses will all benefit. ESCO will help everyone get more out of Europe's labour market.

https://ec.europa.eu/esco

http://ec.europa.eu/social/home.jsp

http://ec.europa.eu/education/index_en.htm

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