

Development of the ESCO Skills.Hierarchy

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Main purposes of the hierarchy

- Search for and retrieve the 13,385 ESCO skill and knowledge concepts systematically to facilitate
 - Compilation of CVs and job vacancies
 - Annotation of qualifications with ESCO skill and knowledge concepts
 - Mapping of national skill and knowledge classifications to ESCO;
 - Creation of skill (self-)assessment tools
 - Provision of targeted career guidance
- Match jobseekers with job vacancies based on their skills and competencies

Original project brief for the group of experts

To produce the following main deliverables before June/July 2019:

- A list of skills and knowledge groups based on the Canadian Skills and Knowledge glossary, enriched with descriptions, scope notes and examples
- Principles for developing the hierarchy
- Guidelines for allocating ESCO KSC concepts to its groupings

Single all-embracing hierarchical framework

- 4 distinct sub-classifications structured according different principles and targeting different types of knowledge and skill/competence (KSC) concept:
 - Knowledge
 - Skills
 - Attitudes & values
 - Language skills and knowledge
- All 13,865 KSC in the ESCO Skills Pillar to be classified to one and only one group in this 3 level hierarchical framework
 - Any cases where KSC might usefully be allocated to more than one category should be noted
- Existing transversal hierarchies to be retained
 - But linkages of individual sector and occupation specific KSC to these hierarchies should be reviewed

Overview of skills and knowledge hierarchy

K Knowledge

S Skills

- S01** Handling Goods, Materials and Plants
- S02** Working with animals
- S03** Constructing
- S04** Operating Machinery, Vehicles and Specialised Equipment
- S05** Interacting with computers
- S06** Installing, Maintaining and Repairing Equipment and Machinery
- S07** Assisting and Caring for Others
- S08** Cleaning
- S09** Creative Thinking and Expression
- S10** Communication collaboration and social interaction
- S11** Obtaining, Storing, Monitoring, and Using Information
- S12** Managing People, Activities, Resources, and Organisations

A Attitudes and values

- A1** Attitudes
- A2** Values

L Language skills and knowledge

Knowledge concepts

- The 2,903 ESCO knowledge concepts will be allocated to the 80 ISCED-F detailed fields of education
 - ✓ Internationally recognized comprehensive 3 level hierarchy developed by UNESCO adapted from EU FoET
 - ✓ Cover all knowledge gained through education.
 - ✓ comprehensive scope statements for each category and an alphabetical index to facilitate mapping
 - ✓ Linkage to educational programmes and qualifications classified to ISCED
 - ❖ ISCED F hierarchy may need adjustment for the purposes of ESCO.
 - To be determined once allocation is complete

Language skills and knowledge

- Each language is listed in the skills pillar as a **knowledge** concept
- 4 categories of language competence are listed as **skill/competence** concepts for almost all languages included in the Skills Pillar
- Separate categories for each language may be relevant for matching jobseekers with job vacancies

Language skills and knowledge

Generic language skills and knowledge

Speak different languages

Translate and interpret

English

Interact verbally in English

Write English

Understand spoken English

Understand written English

Technical language in English

Attitudes and values

16 transversal attitude and 3 transversal value concepts are listed in the transversal skills hierarchy.

- No occupation is linked directly to any transversal attitude or value,
- Numerous cross-sectoral and sector-specific skills/competences have been linked and are in turn allocated to occupations.

A1 Attitudes

- A101 Adapt to change
- A102 Attend to detail
- A103 Attend to hygiene
- A104 Cope with pressure
- A105 Deal with uncertainty
- A106 Demonstrate curiosity
- A107 Demonstrate enthusiasm
- A108 Demonstrate willingness to learn
- A109 Make an effort
- A110 Manage frustration
- A112 Manage quality
- A113 Meet commitments
- A114 Persist
- A115 Work efficiently
- A116 Work independently

A2 Values

- A201 Demonstrate consideration
- A202 Demonstrate good manners
- A203 Follow ethical code of conduct

Principles for the skills section of the hierarchy

Criteria to arrange the remaining skill concepts into groups:

- Tools and equipment used
- The type of object on which the work is performed
- The function or outcome of the task or activity

When skills refer more than one of these variables (for example using x to do y) tools and equipment used should take priority

Groups should be homogeneous as possible in relation to at least one of these characteristics

Aggregate categories should not be sectorally based or reflect traditional methods of grouping occupations

- cross-sectoral, and thus transversal in character

Relevance for mobility between occupations should be the primary consideration

- in design of groups
- in the allocation of skill concepts to groups

Level of detail and number of layers

- Initial focus was on the first two layers of the Canadian Skills and Knowledge hierarchy
 - adapting or expanding its classes where necessary.
- allocating circa 10,000 skills concepts to 40 – 70 second level groups will result in excessively heterogeneous collections of skills.
- Additional layers allow subdivision of overcrowded and heterogeneous level 2 classes.
- A third (and in some cases even fourth) layer of specificity is beneficial for
 - testing coverage, clarity and demarcation of level 2 classes;
 - illustrating content and scope of level 2 classes;
 - guiding towards the right spot in the classification;
 - **matching jobseekers with job vacancies**

Benefits of a fourth layer

- A skills classification for matching job-seekers with job vacancies should offer several layers of specificity leading from the rather generic to the more and more specific.
 - currently ESCO provides mostly highly contextualised skills
 - used, and useful, only for a limited set of occupations and vacancies.
- characteristics shared between vocations and jobs only become apparent if these KSCs can be de-contextualised to an extent that makes mobility paths visible.
- Many ESCO skills concepts in the ESCO skills pillar overlap with each other or are effectively the same
 - ❖ (Cleaning this up should be given high priority)
- A fourth layer of specificity would allow these very similar concepts, with a high degree of skill transferability, to be grouped together,
 - reflecting the more deeply structured vocabularies commonly used in national skills classifications.

3 level hierarchical structure under development

S05 Interacting with computers

S051 Programming computer systems or production equipment.

S052 Implementing security measures for computers or information systems.

S0521 Protecting ICT devices

S0522 Protecting online privacy and personal data

S053 Setting up computer systems, networks, or other information systems.

S054 Resolving computer problems

S055 Using digital tools

S0551 Browsing, searching and filtering digital data

S0552 Managing and analysing digital data

S0553 Using digital tools for collaboration, content creation and problem solving

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Definition

Using ICT software and hardware to collaborate and communicate with others, creating and editing new content (from word processing to images and video) and solving conceptual, technical and practical problems.

Examples

Examples include:

1. Solve technical and navigational problems using global positioning systems
2. Use word processing software
3. Use hand-held ICT devices
4. Use email software and services
5. Use CAD software

Exclusions/scope notes

Excludes:

- Computer programming.
- Resolving computer problems.

Using O*NET IWA to develop first draft level 3

L2 code	Level 2 Title	L3 code	Level 3 Title	IWA ID IWA title
S041	Operating mobile machinery and equipment			4.A.3.a. Operate pumping systems or 3.I02 equipment.
S041	Operating mobile machinery and equipment			4.A.3.a. Operate construction or 3.I03 excavation equipment.
S041	Operating mobile machinery and equipment			4.A.3.a. Operate lifting or moving 3.I08 equipment.
S041	Operating mobile machinery and equipment			4.A.3.a. Operate transportation 4.I01 equipment or vehicles.
S041	Operating mobile machinery and equipment			4.A.3.a. Operate agricultural or forestry 3.I11 equipment.
S042	Operating stationary machinery and equipment			4.A.3.a. Sew garments or materials. 2.I05
S042	Operating stationary machinery and equipment			4.A.3.a. Remove workpieces from 2.I40 production equipment.
S042	Operating stationary machinery and equipment			4.A.3.a. Operate office equipment. 3.I01
S042	Operating stationary machinery and equipment			4.A.3.a. Operate pumping systems or 3.I02 equipment.
S042	Operating stationary machinery and equipment			4.A.3.a. Operate industrial processing or 3.I06 production equipment.
S042	Operating stationary machinery and equipment			4.A.3.a. Operate energy production or 3.I07 distribution equipment.

Iterative process to develop the ESCO Skills and Knowledge Classification

The classification can only be produced in an iterative manner

- Including its underpinning Principles and accompanying Guidelines
- A selection of ESCO's skills concepts is allocated to the draft classification
- adjustments to its classes are made in a series of iterations
 - ❖ This allows it to reflect the reality of the concepts currently defined in the Skills Pillar.
- Allocation process allows identification and flagging of KSCs in need of amendment and correction
 - Too broad, overlapping, duplicates, redundant

Potential gaps have also been identified by

- examining established European frameworks
- mapping the US O*NET's 332 Intermediate Work Activities (IWA) to it.

Recommendations and way forward

- By mid-June, version 0.1 of the hierarchy will be available as an intermediate, operational version for mapping purposes..
 - Some KSC will already be allocated
 - ❖ Allocation of the remainder should start as soon as possible
 - ❖ Bulk allocation using keyword searching will maximise efficiency of matching
 - ❖ Allocations should be reviewed by experts in occupational information/classification
 - ❖ A batch approach will allow amendments to be made to the hierarchy after each batch in a series of iterations
- Hierarchy should only be considered as a “final” Version 1 of European Skills and Knowledge Classification once.
 - ❖ all KSCs have been assigned to it
 - ❖ KSC's have been cleaned up
 - ❖ feedback from mapping national skill classifications has been incorporated.

Thank you!

