



Member States Working Group on ESCO

State of play of the work on skills clustering

14 March 2025

Overview

Introduction

- Scope and project workflow

Alternative skills hierarchy

- Resulting top-level hierarchy and allocated skills

Skill co-occurrence data

- Resulting co-occurrence relations between skills

Consultation

- Assess usability of proposed structure

Overview

Introduction

- Scope and project workflow

Alternative skills hierarchy

- Resulting top-level hierarchy and allocated skills

Skill co-occurrence data

- Resulting co-occurrence relations between skills

Consultation

- Assess usability of proposed structure

Introduction

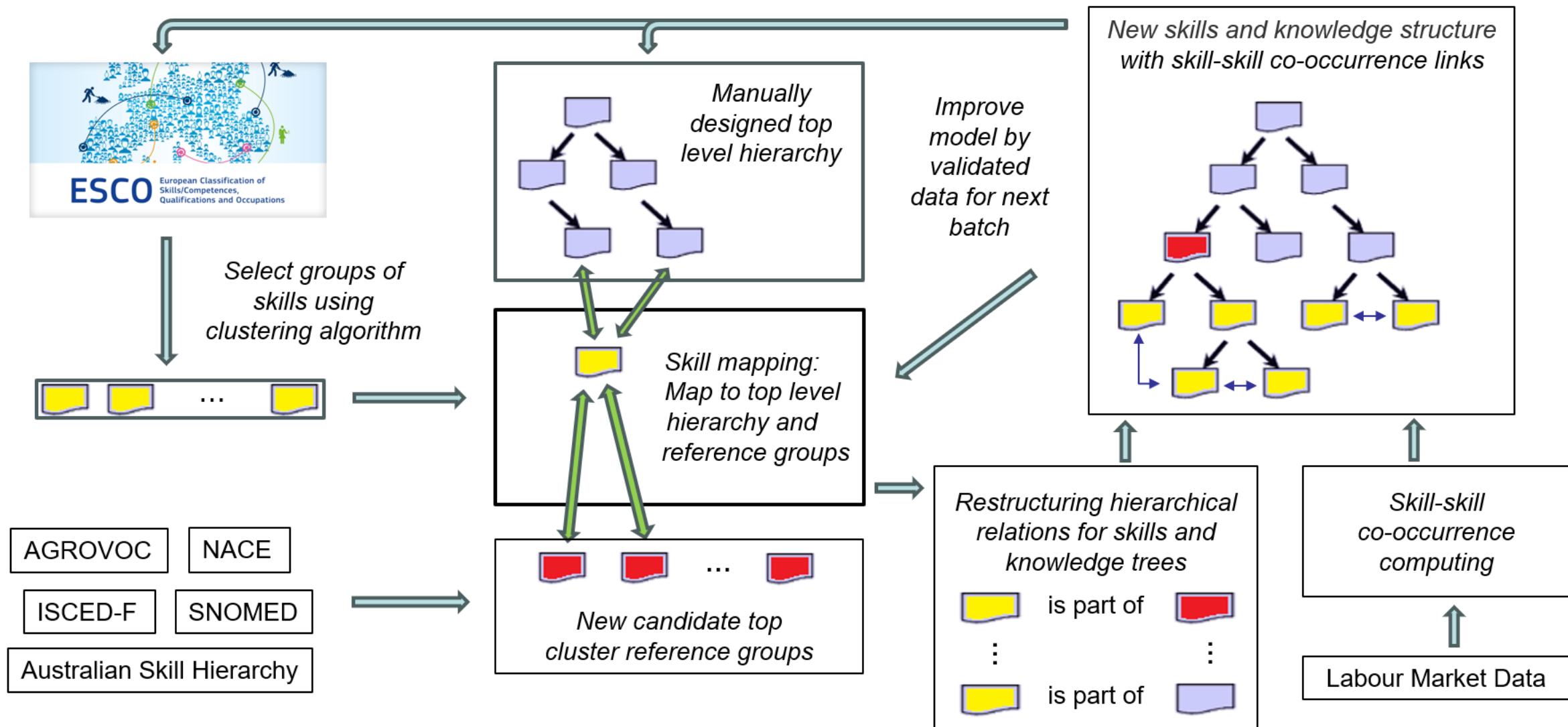
Why skills clustering?

- **Improve classification browsing** by applying an intuitive grouping of skills.
- **Support the use case of matching and skills suggestion** through logical grouping and co-occurrence data.

Scope of the exercise

- Short term improvement of two use cases. Aim is to create a specific view on top of ESCO.
- In parallel, the skills clustering allows for **exploration of strategic improvements** to ESCO.

Introduction



- AGROVOC
- NACE
- ISCED-F
- SNOMED
- Australian Skill Hierarchy

Overview

Introduction

- Scope and project workflow

Alternative skills hierarchy

- Resulting top-level hierarchy and allocated skills

Skill co-occurrence data

- Resulting co-occurrence relations between skills

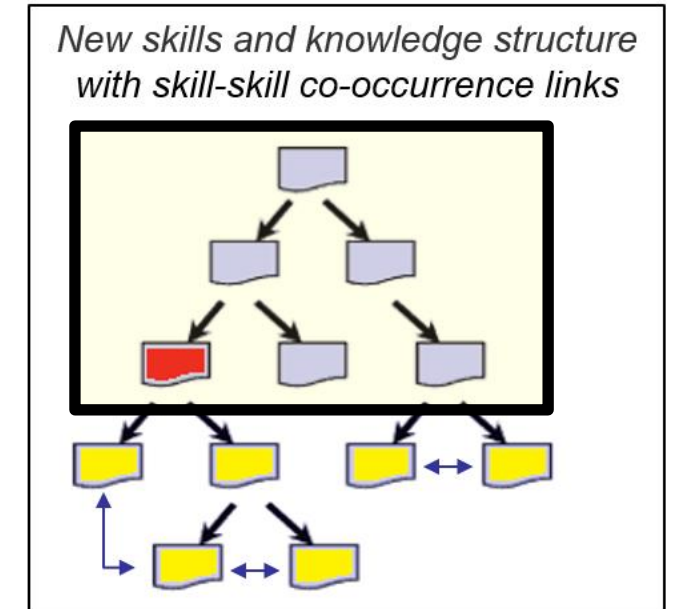
Consultation

- Assess usability of proposed structure

Alternative skills hierarchy: Top-level hierarchy

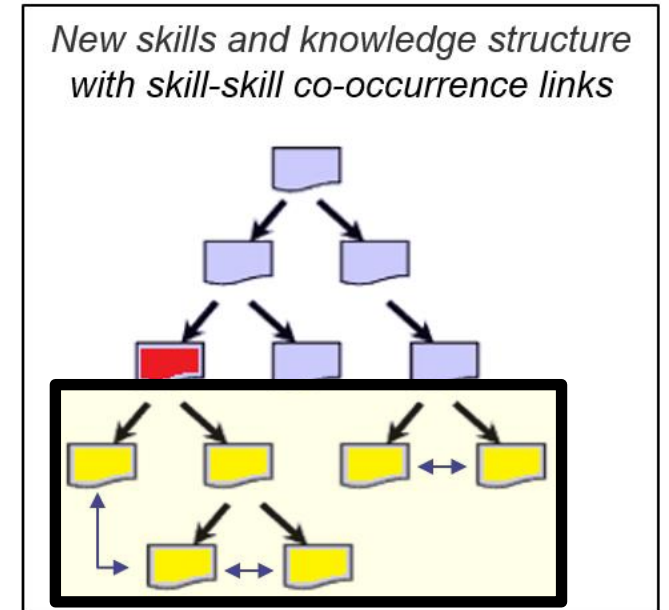
- Top-level hierarchy consists of 7 levels
- In total 468 skills clusters have been added
- Number of skills clusters on each level:

Hierarchical level	Number of skills clusters
1	19
2	115
3	159
4	111
5	29
6	31
7	4
Total	468



Alternative skills hierarchy: Allocated skills

- Allocate ESCO v1.2.0 skills to top-level hierarchy
- Exclude skills part of transversal skills hierarchy and language skills hierarchy
- Some skills were used for the top-level hierarchy
- 13,485 skills were allocated
- Skills allocated to level 9 in alternative hierarchy



Alternative skills hierarchy: Overview

Alternative hierarchy top-level skills cluster	Number of underlying skills clusters	Percentage of underlying skills
Academic and scientific research and development	28	6 %
Accommodation, tourism and food services	7	2 %
Agriculture, forestry, fisheries and veterinary	26	5 %
Architecture, planning and engineering	16	2 %
Arts, entertainment and recreation	33	9 %
Business operations, administration and auditing	13	6 %
Construction	19	3 %
Education and training	12	3 %
General/non-industry specific skills	0	1 %
Health	29	8 %
Information and communication technologies	34	6 %
Legal sector, finance and accounting	12	4 %
Libraries, archives, museums and other cultural activities	3	1 %
Manufacturing and retail	170	26 %
Mining and quarrying	1	1 %
Public services and social work	12	3 %
Transportation, logistics and storage	14	8 %
Utilities	13	3 %
Wellbeing and personal services	7	2 %

Alternative skills hierarchy: Current versus Alternative

Current hierarchy skills cluster	ESCO skill preferred term	Alternative hierarchy skills cluster
S2.4.1 – Gathering information from physical or electronic sources	synthesise research publications	Support activities for academic and scientific research
	collect cyber defence data	Cyber security
	collect client fitness information	Sports for wellbeing
	undertake employee screening	Human resources and employment activities
	manage mine site data	Support activities for mining and quarrying
S2.5.1 – Measuring dimensions and related properties	measure the human body for wearing apparel	Wearing apparel
	measure trees	Forestry
	measure yarn count	Manufacture of textiles
	measure precise food processing operations	Manufacture of food products
	measure the impact of specific aquaculture activity	Aquaculture
S4.1.0 – Developing objectives and strategies	develop non-hazardous waste management strategies	Waste management
	create soil and plant improvement programmes	Carrying out gardening activities
	create an airport master plan	Airport planning
	determine event objectives	Event management
	identify fitted source for heat pumps	Steam and air conditioning supply

Alternative skills hierarchy: Overview

Alternative hierarchy top-level skills cluster	Notes on narrower terms
Academic and scientific research and development	Includes applied areas of scientific research
Accommodation, tourism and food services	Excludes food processed in factory
Agriculture, forestry, fisheries and veterinary	Veterinary separate from human health. Animal care.
Architecture, planning and engineering	Includes topography, urban planning, services to buildings and outdoor spaces
Arts, entertainment and recreation	Sports under entertainment. Applied arts (ex: interior design)
Business operations, administration and auditing	Concepts that support all businesses
Construction	
Education and training	Education on specific subjects should be here (ex: teaching history)
General/non-industry specific skills	Concepts relevant to all industries (ex: manage feedback)
Health	Includes pharmacy and mental health (clinical psychology)
Information and communication technologies	Includes all software tools, even the ones that are industry specific
Legal sector, finance and accounting	Includes all the body of law that is industry specific
Libraries, archives, museums and other cultural activities	
Manufacturing and retail	Includes Product Comprehension, Technical drawings, design for manufacturing
Mining and quarrying	
Public services and social work	Migration, environmental protection, fire services, etc
Transportation, logistics and storage	
Utilities	Power, Telecommunications, Water and Waste
Wellbeing and personal services	Sports for wellbeing, child care, elderly, beauty

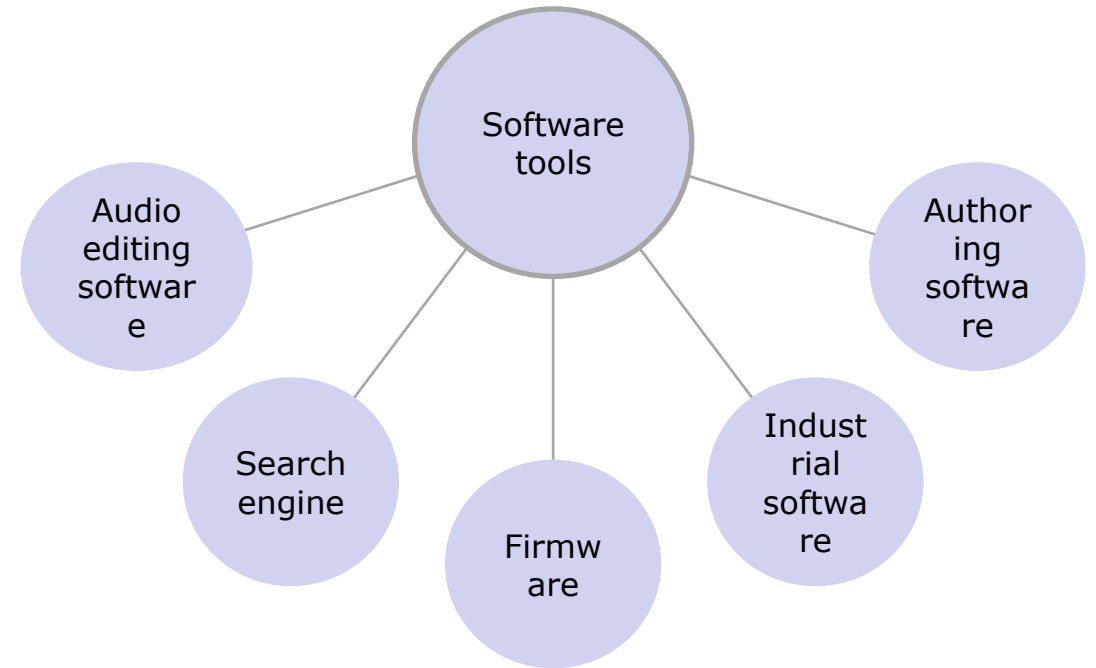
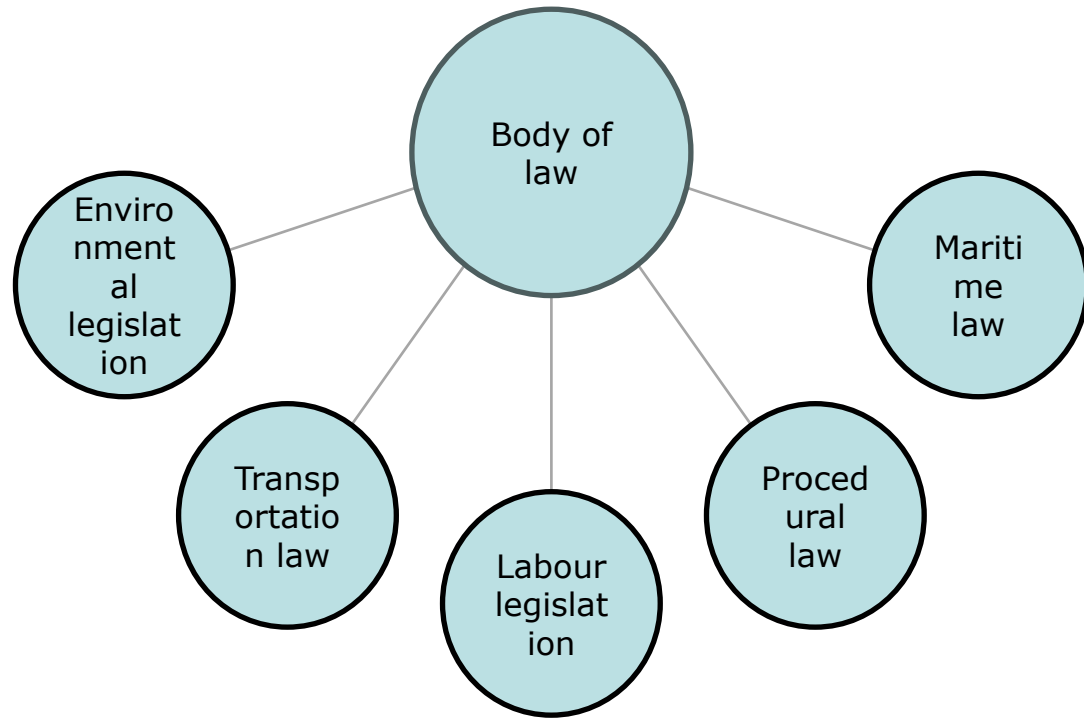
Alternative skills hierarchy: industry-based hierarchy

Alternative hierarchy top-level skills cluster	Business support activities for specific industries	What to find in support activities
Academic and scientific research and development	support activities for academic and scientific research	Marketing, finance, accounting, business communication, management, administrative support, customer service
Agriculture, forestry, fisheries and veterinary	support activities for agriculture	
Agriculture, forestry, fisheries and veterinary	support activities for animal production	
Arts, entertainment and recreation	support activities for arts	
Construction	support activities for construction	
Health	support activities for health	
Manufacturing and retail	support activities for manufacturing	
Mining and quarrying	support activities for mining and quarrying	

Alternative skills hierarchy: trees relevant to several industries

Alternative hierarchy top-level skills cluster	Areas relevant to various industries
Academic and scientific research and development	Academic knowledge can be applied to other industries. Earth sciences are relevant for environmental protection; chemistry is relevant for pharmaceuticals
Accommodation, tourism and food services	Food services use food products, produced by agriculture or processed in factories.
Agriculture, forestry, fisheries and veterinary	Forestry is related to environmental protection; agriculture is relevant to a variety of sectors as it provided natural materials used in a variety of ways
Business operations, administration and auditing	Business operations support businesses across all sectors
Construction	Construction shares elements in common with mining
Information and communication technologies	Software tools are used for a variety of reasons
Legal sector, finance and accounting	The legislative bodies regulates all areas of human activity. Finance and accounting can exist by themselves, but they can also support other sectors
Manufacturing and retail	Manufacture and retail share their dependency on general product comprehension

Representation of trees relevant to several industries in skills clusters



Representation of trees relevant to several industries in skills clusters

• chemicals and chemical products
• electrical equipment
• food products and beverages
• footwear
• games and toys
• textiles

manufacturing
vs
product
comprehension

• manufacture of chemicals and chemical products
• manufacture of electrical equipment
• manufacture of food products and beverages
• manufacture of footwear
• manufacture of games and toys
• manufacture of textiles

Overview

Introduction

- Scope and project workflow

Alternative skills hierarchy

- Resulting top-level hierarchy and allocated skills

Skill co-occurrence data

- Resulting co-occurrence relations between skills

Consultation

- Assess usability of proposed structure

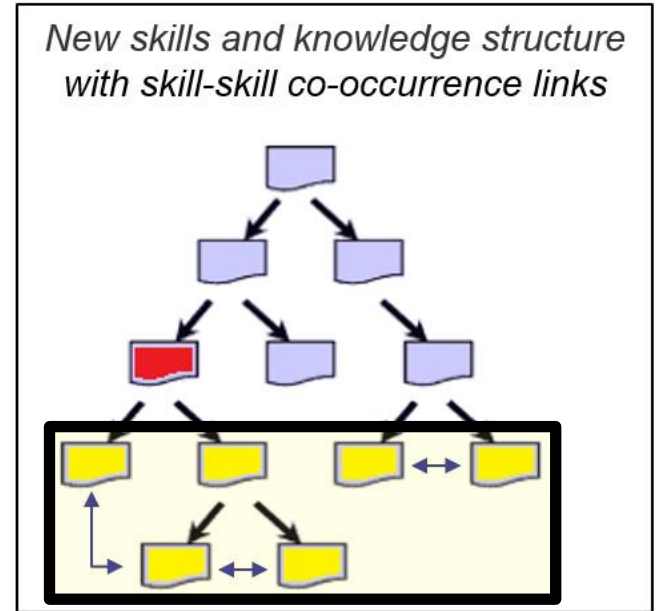
Skill co-occurrence data

- Compute co-occurrence for v1.1.2 skills
- Exclude skills part of transversal skills hierarchy and language skills hierarchy
- 59,846 co-occurrence pairs:

$$co - occurrence(Skill1, Skill2) = \frac{\text{number of online job advertisements with Skill1 and Skill2}}{\text{number of online job advertisements with Skill1}}$$

- Coverage:

	Number (percentage) of unique skills
Co-occurrence Skill1	10,674 (79%)
Co-occurrence Skill2	8,204 (61%)



Skill co-occurrence data: Co-occurrence value statistics

Co-occurrence	Number (percentage) of co-occurring skill pairs	Co-occurring skill pair (skill1, skill2)	
0.2 <= X < 0.4	34,517 (58%)	VBScript	operate relational database management system
		diagnose genetic diseases	clinical biology
		create moving images	Adobe Photoshop Lightroom
		ingredients for beer production	modern brewing systems
0.4 <= X	25,329 (42%)	ensure compliance with railway regulation	railway framework legislation
		add slabs to ceramic work	ceramic ware
		enterprise risk management	risk management
		produce guitar components	types of guitars

Skill co-occurrence data: Co-occurrence vs hierarchy

- Hierarchy targets meaningful grouping of concepts
- Strong relations can exist between skills from different skills clusters
- These relations are relevant for use-cases such as skill suggestion and job recommendation
- To which extent are hierarchical links and co-occurrence links *aligned* versus *complementary*?

Skill co-occurrence data: Co-occurrence vs hierarchy

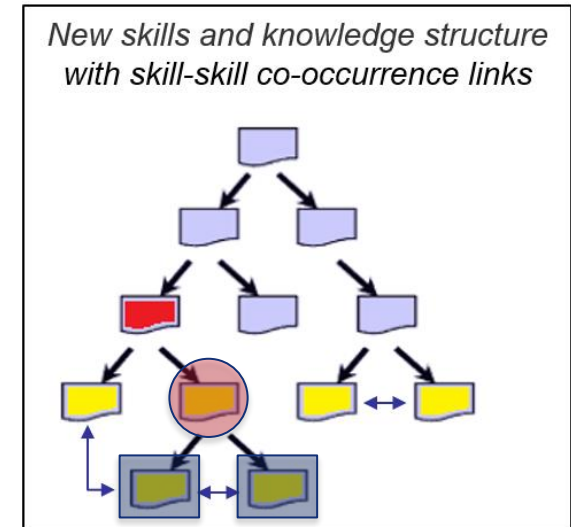
- Lowest common ancestor (LCA) in hierarchy for co-occurring skills:

co – occurrence(Skill1, Skill2)

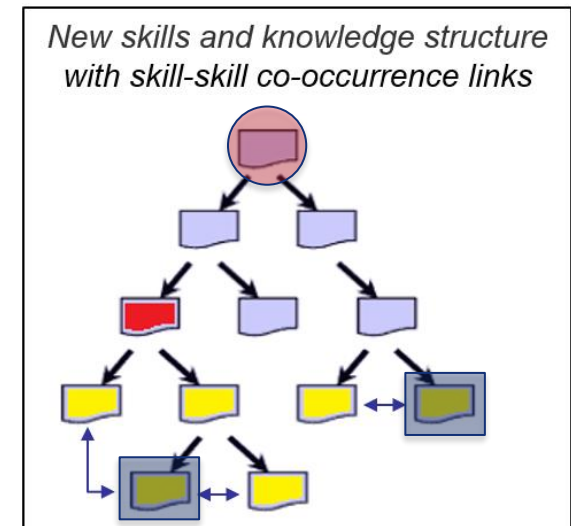
- LCA overview for all ESCO skills:

Lowest common ancestor for co-occurring pair	Percentage of co-occurring skill pairs
1	28 %
2	16 %
3	24 %
4	20 %
5	7 %
6	2 %
7	1 %
8	0.1 %
9	0.01 %

LCA = 4



LCA = 1

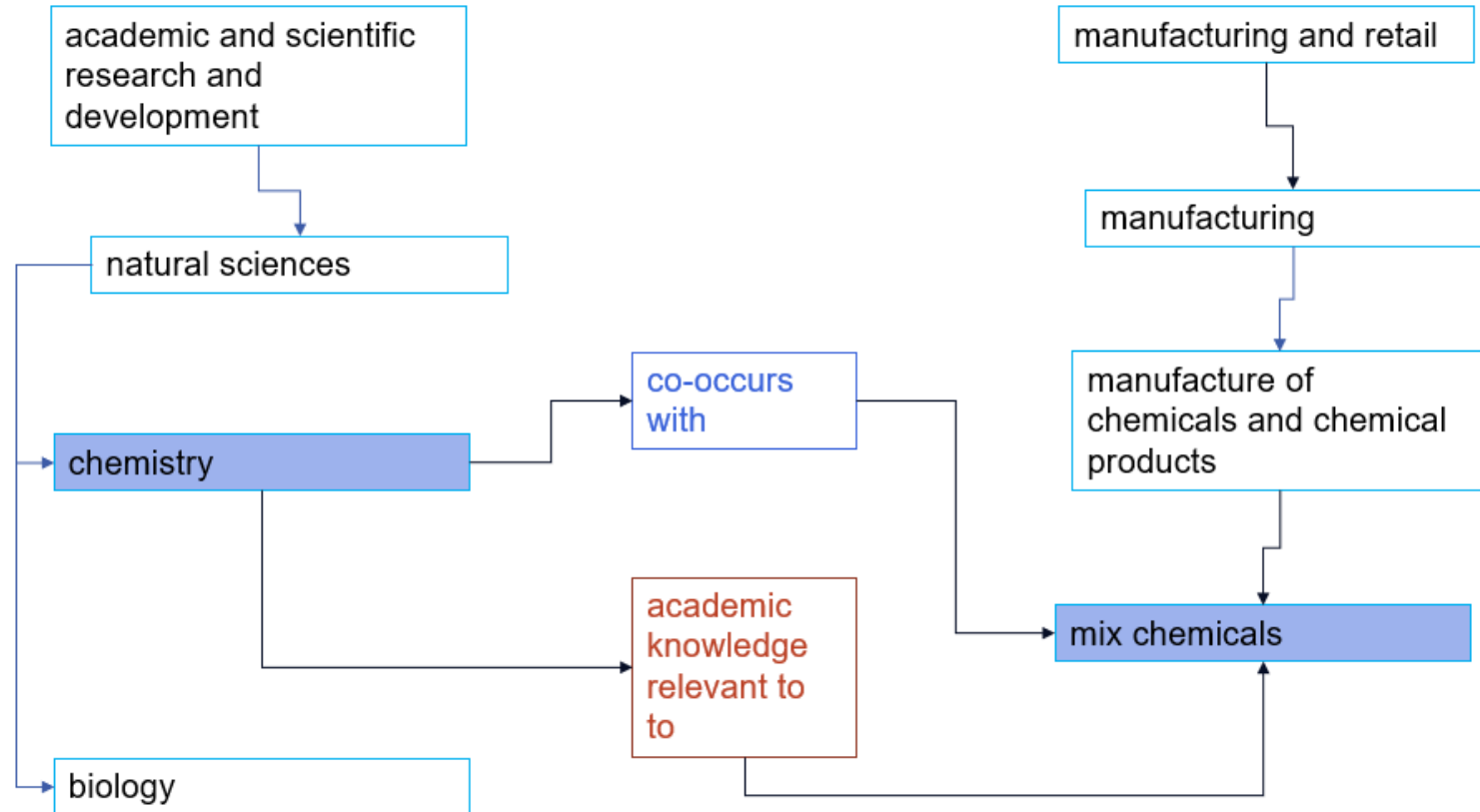


Skill co-occurrence data: Co-occurrence vs hierarchy

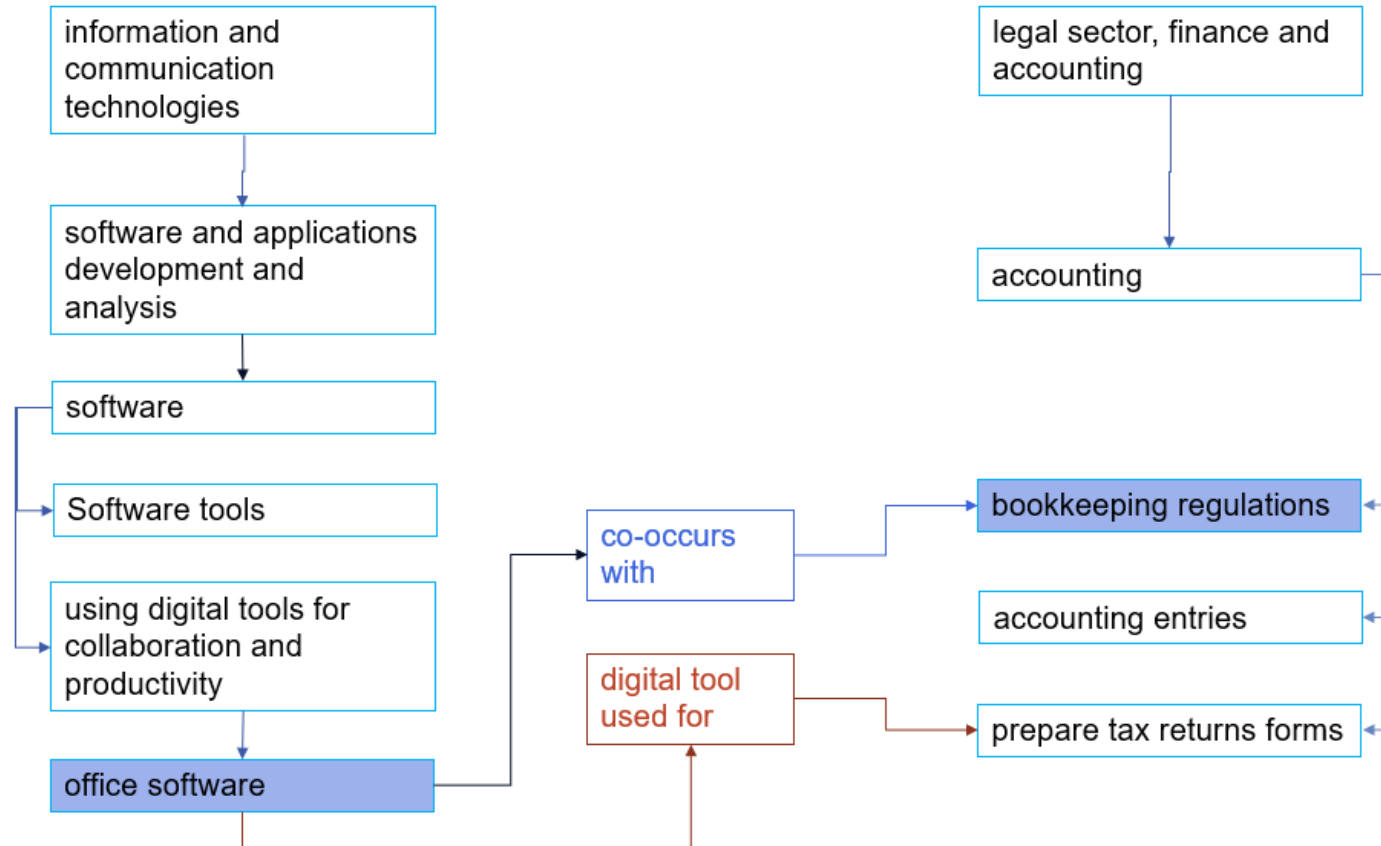
- Hierarchy targets meaningful grouping of concepts
- Strong relations can exist between skills from different skills clusters
- These relations are relevant for use-cases such as skill suggestion and job recommendation
- To which extent are hierarchical links and co-occurrence links *aligned* versus *complementary*?

Co-occurring skill pair	Alternative hierarchy skills cluster
purchase supplies	Procurement
accounting	Legal sector, finance and accounting
mix chemicals	Manufacture of chemicals and chemical products
chemistry	Natural sciences
assess railway operations	Rail transport
railway law	Body of law
train staff to reduce food waste	Workplace learning
food waste monitoring systems	Software for specific industries and occupations
biosecurity related to animals	Tending animals
biosecurity	Support activities for health
bookkeeping regulations	Accounting
office software	Digital tools for collaboration and productivity
manage land resources permits	Urban planning
environmental legislation	Body of law

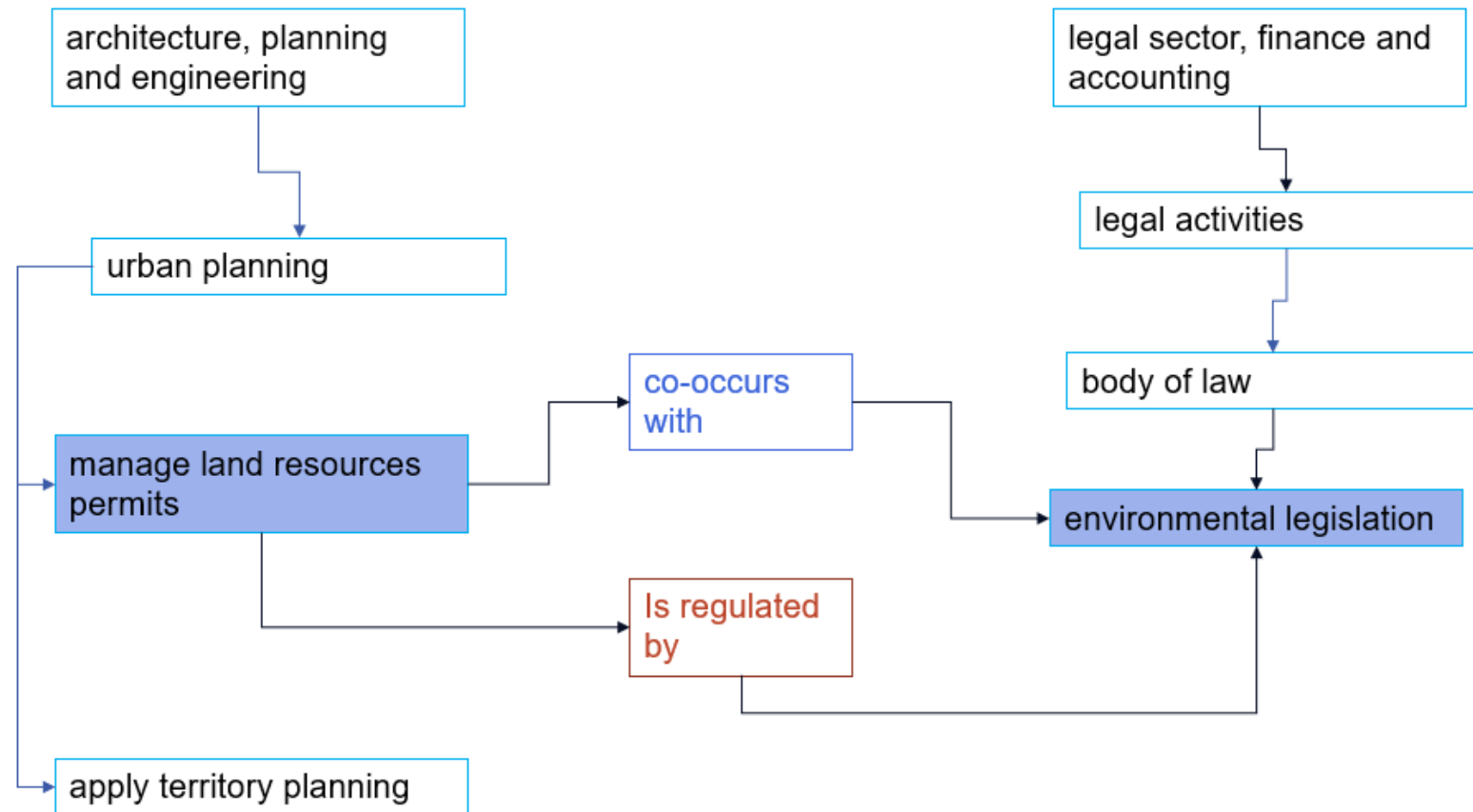
Skill co-occurrence data: Co-occurrence vs hierarchy



Skill co-occurrence data: Co-occurrence vs hierarchy



Skill co-occurrence data: Co-occurrence vs hierarchy



Overview

Introduction

- Scope and project workflow

Alternative skills hierarchy

- Resulting top-level hierarchy and allocated skills

Skill co-occurrence data

- Resulting co-occurrence relations between skills

Consultation

- Assess usability of proposed structure

Consultation

- Consultation: 27 February 2025 – 31 May 2025
- Objective: Assess the usability of the alternative hierarchy and co-occurrence data in their core businesses
- Goal is not to validate the allocation of skills or skill co-occurrence pairs
- Expected feedback:
 - Evaluate the applied methodology
 - Describe use cases, testing approach, and key metrics to assess the new structures
 - Evaluate the new structures and conclude if it a useful for their specific context

Consultation feedback questions (1/2)

- Answer questions, e.g.:
 - Are you already using a skills hierarchy (e.g. the existing ESCO skills hierarchy or any other) in your work?
 - What are your use cases for using a skills hierarchy?
 - Is the alternative skills hierarchy more intuitive to navigate than the existing ESCO skills hierarchy?
 - Are there any areas of the new top-level hierarchy that feel out of place?
 - Is the new top-level hierarchy comprehensive of all areas of the labour market? If not, which sectors are missing?

Consultation feedback questions (2/2)

- Answer questions, e.g.:
 - Is an industry-driven organisation of concepts more relevant for your use-cases?
 - Is it useful to have a structure that allows to have skill and knowledge concepts combined in the same hierarchy?
 - Do you think it is relevant to establish relations (such as co-occurrence statistics) between skills from different skills clusters?
 - Are you already using/compiling statistics on which skills are co-occurring in the workplace?
 - Would the co-occurrence statistics support your existing use cases or enable new ones?

Consultation

- Participants

Organisation/Company name	Organisation type	Country
APIROPLUS Solutions Ltd.	Private Sector Company	Cyprus
Arbetsformedlingen (Swedish Public Employment Agency)	Public Employment Service	Sweden
Clarifiet	Private Sector Company	Denmark
Danish Agency for Labour Market and Recruitment	Public Employment Service	Denmark
Finnish National Agency for Education	Public Employment Service or other Public Authority	Finland
Lightcast	Private Sector Company	Italy
Palacky University Olomouc	Education Provider	Czech Republic
Saipem	Private Sector Company	Italy
VDAB	Public Employment Service	Belgium
XOBOL	Private Sector Company	Greece

Consultation Files

- Alternative hierarchy and allocated concepts

Identifier Level 1	PT Level 1	Identifier Level 2	PT Level 2
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/03b9b491-fc9b-4868-914a-bf7cd47b5041	create solutions to problems
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/089bab26-a854-40fb-8c04-5be4f693315a	integrate strategic foundation in daily performance
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/08e2ff26-88ff-47b5-9d37-d19ace01b075	manage feedback
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/0b071b01-4b40-4936-9d6d-d8c5609481b4	identify support mechanisms to develop your professional practice
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/0b144726-21c2-46ed-8d13-c03d27f61604	perform multiple tasks at the same time
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/0c606377-fbd6-4f66-b700-ba4524670b73	screen clients
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/0e161427-3369-47c0-8669-9e226207f6d0	discern written communication
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/0e21e183-e787-4f23-a240-93b416c088c2	maintain personal hygiene standards
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/0f46a403-9606-465f-8247-8ae975ff4f35	communicate verbal instructions
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/1835a7c1-600e-4b16-a0af-fb4f7d8d77b9	develop personal skills
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/194c05ed-253c-485a-8bf0-0c8de1aaafda	follow work schedule
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/1ba59ce0-7fec-434b-8d5c-9b275250a26c	prepare presentation material
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/1dea2f3a-857c-4fc3-b1f8-d5f2015c46a9	give instructions to staff
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/23ac233d-84ad-4517-b0f5-8ca19ba2614e	monitor developments in field of expertise
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/26a6e6d2-1c9a-4d7e-8c04-5ba16d1f53da	greet guests
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/3035be48-c249-453f-bf11-cb27219448b8	deal with challenging work conditions
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/3035be48-c249-453f-bf11-cb27219448b8	deal with challenging work conditions
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/30b1f3e1-1586-4d41-aa02-e2ab021b5164	handle paperwork
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/38788a64-6271-40ff-9e0b-5644c38322ff	consultation methods
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/3a876d1c-3dd5-45ed-9a27-47cdbee46ce7	ensure information transparency
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/414332e4-8347-4771-b947-65bd3801a620	use consulting techniques
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/4659e742-7568-4b16-86df-57cb66fd926	provide input to collaborators to guide their work
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/48391ec6-42ba-4093-acf4-c7673b0c07f4	process commissioned instructions
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/4932c6e3-f6c7-49bf-bf66-f8508237054f	comply with schedule
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/4b3c8605-819d-4b38-83fc-f23663e78dc9	consultation
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/4e7b2c61-aa42-404c-995f-32281b818923	have spatial awareness
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/50ab7296-bc34-4cb1-9fdb-7cf7b6f80f9c	maintain work standards
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/512dc6a9-d55f-4042-a565-4a929731d8e3	prepare work instructions
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/54d68400-9da3-4077-a7ee-52e68b390ef6	follow written instructions
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/56ec6990-3e5b-475f-88e4-2c209f5625b3	work with different target groups
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/59429f7f-8b95-4094-b1cf-97cbb556f03d	participatory decision-making
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/59ad10b1-6f71-4dd4-ad1f-a1fdf68bc2fb	show professional responsibility
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/5a927fa0-462e-4d54-ae12-97fd6ca45762	exercise self-control
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/5b394ba8-5d40-40d9-b771-5df6ea9ac436	perform technical tasks with great care
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/5efec19d-aca8-4608-b824-f8cf438a8dfe	monitor recommendation follow-up
SC.1	general / non industry specific skills	http://data.europa.eu/esco/skill/5fa6cd2f-9bab-4afa-a184-2d2f1401b770	write meeting reports

Consultation Files

- Alternative hierarchy and allocated concepts

skills_hierarchy_esco_v120_consultation.html

ESCO Skills Clustering - ESCO v1.2.0

[Collapse All](#) [Expand All](#)

- ▶ SC.1 general / non industry specific skills
- ▼ SC.2 academic and scientific research and development
 - Academic and scientific research and development refers to systematic and organized activities undertaken to expand knowledge and understanding in academic disciplines and scientific fields.
 - ▶ SC.2.1 languages
 - ▶ SC.2.2 natural sciences
 - ▶ SC.2.3 support activities for academic and scientific research
 - ▶ SC.2.4 theology and religion
 - ▶ SC.2.5 literature
 - ▶ SC.2.6 history
 - ▶ SC.2.7 mathematics
 - ▶ SC.2.8 social sciences
 - ▼ SC.2.9 archaeology
 - The study of the recovery and examination of material culture left behind from human activity in the past.
 - ▶ provide conservation advice
 - ▶ record archaeological finds
 - ▶ work in restoration team
 - ▶ identify archaeological finds

Consultation Files

- Skill-skill co-occurrence data

Skill1 URI	Skill1 PT	Skill2 URI	Skill2 PT	Co-occurrence
http://data.europa.eu/esco/skill/0005c151-5b5a-4a66-8aac-60e734beb1ab	manage musical staff	http://data.europa.eu/esco/skill/a672418c-0188-409e-80fb-51041f40f201	supervise musicians	0.7161172161172161
http://data.europa.eu/esco/skill/0005c151-5b5a-4a66-8aac-60e734beb1ab	manage musical staff	http://data.europa.eu/esco/skill/a0317bcb-de20-41ee-a63a-6985b53f91cf	conduct musical ensembles	0.4468864468864469
http://data.europa.eu/esco/skill/0005c151-5b5a-4a66-8aac-60e734beb1ab	manage musical staff	http://data.europa.eu/esco/skill/339f165c-0002-47d2-91a6-ca4722ec682f	supervise music groups	0.4255189255189255
http://data.europa.eu/esco/skill/0005c151-5b5a-4a66-8aac-60e734beb1ab	manage musical staff	http://data.europa.eu/esco/skill/8982fa08-51a2-4436-b23b-c353257711f3	advise on music pedagogy	0.26556776556776557
http://data.europa.eu/esco/skill/00064735-8fad-454b-90c7-ed858cc993f2	supervise correctional procedures	http://data.europa.eu/esco/skill/d4a0744a-508b-4a5e-97a5-ad1fc7f55e6e	correctional procedures	0.9387218045112782
http://data.europa.eu/esco/skill/00064735-8fad-454b-90c7-ed858cc993f2	supervise correctional procedures	http://data.europa.eu/esco/skill/8012b58f-58a3-4a39-af28-84a7431ee51e	contribute to the formulation of correctional procedures	0.8872180451127819
http://data.europa.eu/esco/skill/00064735-8fad-454b-90c7-ed858cc993f2	supervise correctional procedures	http://data.europa.eu/esco/skill/dda679c9-b49f-4553-ab7a-fbe25ecf53ad	escort defendants	0.22293233082706768
http://data.europa.eu/esco/skill/0007bdc2-dd15-4824-b7d6-416522c46f35	control compliance of railway vehicles regulations	http://data.europa.eu/esco/skill/7c4bb41a-9b5a-472c-888a-9d58bb4e2a0d	ensure compliance with railway regulation	0.4325966850828729
http://data.europa.eu/esco/skill/0007bdc2-dd15-4824-b7d6-416522c46f35	control compliance of railway vehicles regulations	http://data.europa.eu/esco/skill/1a080b07-406e-4a2e-b316-fc766f2e6e2d	railway law	0.3994475138121547
http://data.europa.eu/esco/skill/0007bdc2-dd15-4824-b7d6-416522c46f35	control compliance of railway vehicles regulations	http://data.europa.eu/esco/skill/aaee0ebe-d6f5-4355-8fed-460963306445	railway framework legislation	0.36906077348066296
http://data.europa.eu/esco/skill/0007bdc2-dd15-4824-b7d6-416522c46f35	control compliance of railway vehicles regulations	http://data.europa.eu/esco/skill/22ca7fdd-f6e0-473a-b797-a8ac955a319a	comply with railway safety standards	0.3441988950276243
http://data.europa.eu/esco/skill/0007bdc2-dd15-4824-b7d6-416522c46f35	control compliance of railway vehicles regulations	http://data.europa.eu/esco/skill/81f03b64-4f82-4bc4-b67d-894ddc97985b	enforce railway safety regulations	0.28066298342541435
http://data.europa.eu/esco/skill/0007bdc2-dd15-4824-b7d6-416522c46f35	control compliance of railway vehicles regulations	http://data.europa.eu/esco/skill/ceb0d9a0-96c6-4334-bcf4-c529e314d1ac	rail infrastructure	0.2580110497237569
http://data.europa.eu/esco/skill/0007bdc2-dd15-4824-b7d6-416522c46f35	control compliance of railway vehicles regulations	http://data.europa.eu/esco/skill/4b8670a1-f3cd-4c1d-bd1e-8b9a0e1c2b9a	operate railway vehicles	0.23701657458563535
http://data.europa.eu/esco/skill/00090cc1-1f27-439e-a4e0-19a87a501bfc	identify available services	http://data.europa.eu/esco/skill/fb3bc9b5-2297-4bba-85b1-60f696a92db8	characteristics of services	0.21739130434782608
http://data.europa.eu/esco/skill/000bb1e4-89f0-4b86-be05-05ece3641724	perform toxicological studies	http://data.europa.eu/esco/skill/b70ab677-5781-40b5-9198-d98f4a34310f	toxicology	0.9185435435435435
http://data.europa.eu/esco/skill/001d46db-035e-4b92-83a3-ed8771e0c123	train staff to reduce food waste	http://data.europa.eu/esco/skill/bbfb0e36-807c-492f-bed2-267224ba7bc7	conduct research on food waste prevention	0.7378640776699029
http://data.europa.eu/esco/skill/001d46db-035e-4b92-83a3-ed8771e0c123	train staff to reduce food waste	http://data.europa.eu/esco/skill/df0087d-25e4-40bf-979e-32fd2445438	develop food waste reduction strategies	0.23701657458563535
http://data.europa.eu/esco/skill/001d46db-035e-4b92-83a3-ed8771e0c123	train staff to reduce food waste	http://data.europa.eu/esco/skill/3936cc7d-d045-4eb0-b951-b862a072c0a2	design indicators for food waste reduction	0.5598705501618123
http://data.europa.eu/esco/skill/001d46db-035e-4b92-83a3-ed8771e0c123	train staff to reduce food waste	http://data.europa.eu/esco/skill/dacaebb5-5d85-4f3e-9adb-7c82b4f53189	dispose food waste	0.4053398058252427
http://data.europa.eu/esco/skill/001d46db-035e-4b92-83a3-ed8771e0c123	train staff to reduce food waste	http://data.europa.eu/esco/skill/2879e8f6-037a-49ed-ba73-6f7d7766223e	food waste monitoring systems	0.22653721682847897
http://data.europa.eu/esco/skill/001d46db-035e-4b92-83a3-ed8771e0c123	train staff to reduce food waste	http://data.europa.eu/esco/skill/c29fed5c-f03b-4389-b110-29b6db00cd01	dispose non-food waste within the food industry	0.2111650485436893
http://data.europa.eu/esco/skill/0023e7a5-43da-4b68-bee3-726ef21f986d	apply diplomatic principles	http://data.europa.eu/esco/skill/ece25f2f-e91a-4186-a221-caa715195fd7	show diplomacy	0.9676417613812807
http://data.europa.eu/esco/skill/0023e7a5-43da-4b68-bee3-726ef21f986d	apply diplomatic principles	http://data.europa.eu/esco/skill/5753e2ca-8934-45d3-8e52-3877d373239d	diplomatic principles	0.7976523197316937
http://data.europa.eu/esco/skill/0023e7a5-43da-4b68-bee3-726ef21f986d	apply diplomatic principles	http://data.europa.eu/esco/skill/fd2d573f-8d35-45ca-b0a4-91cad3b178d1	make diplomatic decisions	0.4786038134277374
http://data.europa.eu/esco/skill/00298d97-3dc3-4086-a902-bce0a2fba831	lead police investigations	http://data.europa.eu/esco/skill/739194a6-407a-40e9-b8bf-2e9934b77632	assist police investigations	0.47340485601355164
http://data.europa.eu/esco/skill/00298d97-3dc3-4086-a902-bce0a2fba831	lead police investigations	http://data.europa.eu/esco/skill/5996d5a6-1100-4138-bf57-ef82240bf37e	perform covert investigations	0.23195934500282325
http://data.europa.eu/esco/skill/0037c821-2898-4919-b96e-7ed1cd89554c	develop energy saving concepts	http://data.europa.eu/esco/skill/83fc0b2b-6cd2-46af-b1ff-d3fc83604c26	energy efficiency	0.7203791469194313
http://data.europa.eu/esco/skill/0037c821-2898-4919-b96e-7ed1cd89554c	develop energy saving concepts	http://data.europa.eu/esco/skill/1e38f5be-bb7d-42c5-8301-c16c400f8ee	energy	0.6573738500139392
http://data.europa.eu/esco/skill/0037c821-2898-4919-b96e-7ed1cd89554c	develop energy saving concepts	http://data.europa.eu/esco/skill/c4e9fd0-bb4d-42d7-83a5-2c131f6d67c2	develop energy policy	0.4833008084750488

Consultation NACE mapping

- To be concluded by 15 March
- Participants

Organisation/Company name	Organisation type	Country
Finnish National Agency for Education	Public Employment Service or other Public Authority	Finland
KEHA Keskus	Public Employment Service or other Public Authority	Finland
SkillLab	Private Sector Company	Netherlands
Orkestra - Basque Institute of Competitiveness	Research/Statistical office	Spain
Arbeids- og velferdsdirektoratet	Public Employment Service or other Public Authority	Norway
ApiroPlus Solutions	Private Sector Company	Cyprus
Akademias	Private Sector Company; Education Provider	Iceland
Centrul de Dezvoltare si Management	Other (NGO)	Moldova
REFORMED	Education Provider; Other (organisation international INPA for accreditation)	Europe: BE FR IT GE LU IT PT RO, Int: DZ JP
Web2Learn	Private Sector Company	Greece
XOBOL	Private Sector Company	Greece
Instituto de la Construcción de Castilla y León	Other (Private non-profit scientific and cultural foundation)	Spain

Consultation Files NACE mapping

- NACE mappings with ESCO occupations

ESCO URI	ESCO PT	ESCO description	NACE code	NACE title	Validation	Comments	Suggested NACE mapping
http://data.europa.eu/esc	3D animator	3D animators are in cha	J59.11	Motion picture, video and television programme production activities			
http://data.europa.eu/esc	3D animator	3D animators are in cha	J59.12	Motion picture, video and television programme post-production activities			
http://data.europa.eu/esc	3D animator	3D animators are in cha	J62	Computer programming, consultancy and related activities			
http://data.europa.eu/esc	3D modeller	3D modellers design 3D	J62	Computer programming, consultancy and related activities			
http://data.europa.eu/esc	3D printing technician	3D printing technicians	M74.10	Specialised design activities			
http://data.europa.eu/esc	abrasive blasting operator	Abrasive blasting opera	C23.91	Production of abrasive products			
http://data.europa.eu/esc	absorbent pad machine operator	Absorbent pad machin	C20.60	Manufacture of man-made fibres			
http://data.europa.eu/esc	academic advisor	Academic advisors assi	P85.59	Other education n.e.c.			
http://data.europa.eu/esc	academic support officer	Academic support offic	P85.60	Educational support activities			
http://data.europa.eu/esc	accommodation manager	Accommodation manag	I55	Accommodation			
http://data.europa.eu/esc	accommodation manager	Accommodation manag	M70.22	Business and other management consultancy activities			
http://data.europa.eu/esc	accountant	Accountants review an	M69.20	Accounting, bookkeeping and auditing activities; tax consultancy			
http://data.europa.eu/esc	accounting analyst	Accounting analysts ev	M69.20	Accounting, bookkeeping and auditing activities; tax consultancy			
http://data.europa.eu/esc	accounting assistant	Accounting assistants r	M69.20	Accounting, bookkeeping and auditing activities; tax consultancy			
http://data.europa.eu/esc	accounting manager	Accounting managers a	M69.20	Accounting, bookkeeping and auditing activities; tax consultancy			
http://data.europa.eu/esc	acoustical engineer	Acoustical engineers st	M71.12	Engineering activities and related technical consultancy			
http://data.europa.eu/esc	acoustical engineer	Acoustical engineers st	M71.20	Technical testing and analysis			
http://data.europa.eu/esc	activism officer	Activism officers prom	S94.99	Activities of other membership organisations n.e.c.			
http://data.europa.eu/esc	activity leader	Activity leaders provid	R93.29	Other amusement and recreation activities			
http://data.europa.eu/esc	actor/actress	Actors/actresses play	R90.01	Performing arts			
http://data.europa.eu/esc	actuarial assistant	Actuarial assistants per	K66.29	Other activities auxiliary to insurance and pension funding			
http://data.europa.eu/esc	actuarial consultant	Actuarial consultants ar	K65.1	Insurance			
http://data.europa.eu/esc	actuarial consultant	Actuarial consultants ar	K65.20	Reinsurance			
http://data.europa.eu/esc	actuarial consultant	Actuarial consultants ar	K65.30	Pension funding			
http://data.europa.eu/esc	actuarial consultant	Actuarial consultants ar	K66.29	Other activities auxiliary to insurance and pension funding			
http://data.europa.eu/esc	acupuncturist	Acupuncturists make us	Q86.90	Other human health activities			
http://data.europa.eu/esc	acupuncturist	Acupuncturists make us	S96.04	Physical well-being activities			
http://data.europa.eu/esc	acupuncturist	Acupuncturists make us	S96.09	Other personal service activities n.e.c.			
http://data.europa.eu/esc	administrative assistant	Administrative assistan	N82.11	Combined office administrative service activities			
http://data.europa.eu/esc	admissions coordinator	Admissions coordinato	P85.60	Educational support activities			
http://data.europa.eu/esc	adult community care worker	Adult community care	Q88.99	Other social work activities without accommodation n.e.c.			
http://data.europa.eu/esc	adult literacy teacher	Adult literacy teachers	P85.59	Other education n.e.c.			
http://data.europa.eu/esc	advanced nurse practitioner	Advanced nurse practit	Q86.10	Hospital activities			
http://data.europa.eu/esc	advanced nurse practitioner	Advanced nurse practit	Q86.90	Other human health activities			
http://data.europa.eu/esc	advanced nurse practitioner	Advanced nurse practit	Q87.10	Residential nursing care activities			
http://data.europa.eu/esc	advanced physiotherapist	Advanced physiotherap	Q86.90	Other human health activities			

Thank you!

The ESCO Secretariat is always available to support implementers.

May you have any question, please contact us via email at EMPL-ESCO-SECRETARIAT@ec.europa.eu, use our hashtag #ESCO_EU.