ESCO: TOWARDS A SEMANTIC WEB FOR THE EUROPEAN LABOUR MARKET

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Agenda

An overview of ESCO

ESCO: an ecosystem of vocabularies

ESCO as Linked Open Data

Next steps

ESCO: Overview

A multi-lingual classification of **E**uropean **S**kills, **C**ompetences, **O**ccupations and Qualifications

Developed by the E.C.:
DG Employment, Social Affairs and Inclusion and
DG Education and Culture
in collaboration with stakeholders (CEDEFOP, EQF, …)

Already on its 4th development year

Currently: 10.000 concepts, 25 languages, >200K terms

Final: 25.000 concepts, >500K terms

https://ec.europa.eu/esco/home

Objectives

EU-wide set of multi-lingual vocabularies
- An upcoming **standard** in the EU job labor market

Facilitate EU job market transparency and mobility
- ESCO is developed in **25 languages**

Facilitate **matching:** supply (CVs) vs. demand (Job Vacancies)
- Applications can be built on top of the classification

ESCO classification as a **hub taxonomy** (in SKOS) for the job labor market
- Will be mapped to National Job Labor Market classifications
- Public/Private Employment Services

The 3 main ESCO pillars (the core)
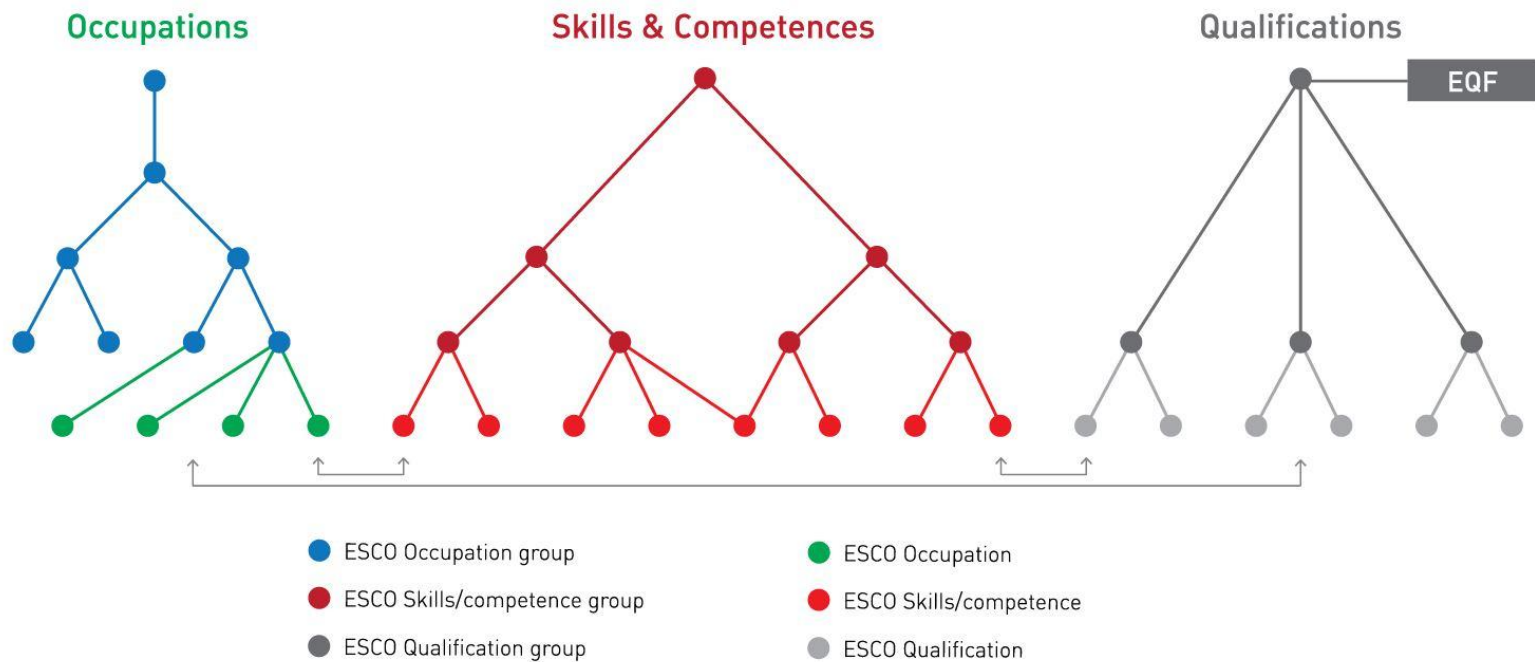
Relations

The concepts in the pillars are related
- **Within**
  - (hierarchical broader/narrower)
- **Between**
  - (domain relations like essential and optional skills related to an occupation),
- **and outside**
  - (tagging and mapping relations)

Tagging Relations

Adding a tag to an ESCO concept for context information
- E.g. a NACE code for an Occupation Group
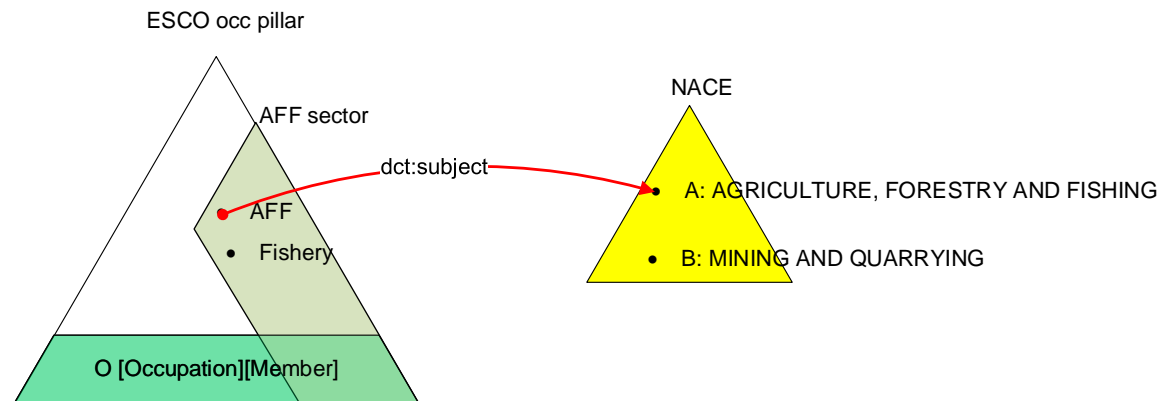
Mapping Relations

Compose

- ◦ exactMatch **o** exactMatch
- ◦ exactMatch **o** closeMatch
- ◦ exactMatch **o** broadMatch
- ◦ broadMatch **o** exactMatch
- ◦ exactMatch **o** narrowMatch
- ◦ narrowMatch **o** exactMatch
- ◦ broadMatch **o** broadMatch ⊃ esco:broadTransitiveMatch
- ◦ narrowMatch **o** narrowMatch ⊃ esco:narowTransitiveMatch

ISCO-88 Occupation Groups

5123: Waiters, waitresses and bartenders

ESCO Occupation Groups

ESCO Occupations

skos:broadMatch

ISCO-08 Occupation Groups

5131: Waiters

skos:broadMatch

waiter/waitress

skos:closeMatch

G1801: Café bar brasserie

ROME/fr Occupation Groups

broader

Serveur / Serveuse de bar-brasserie
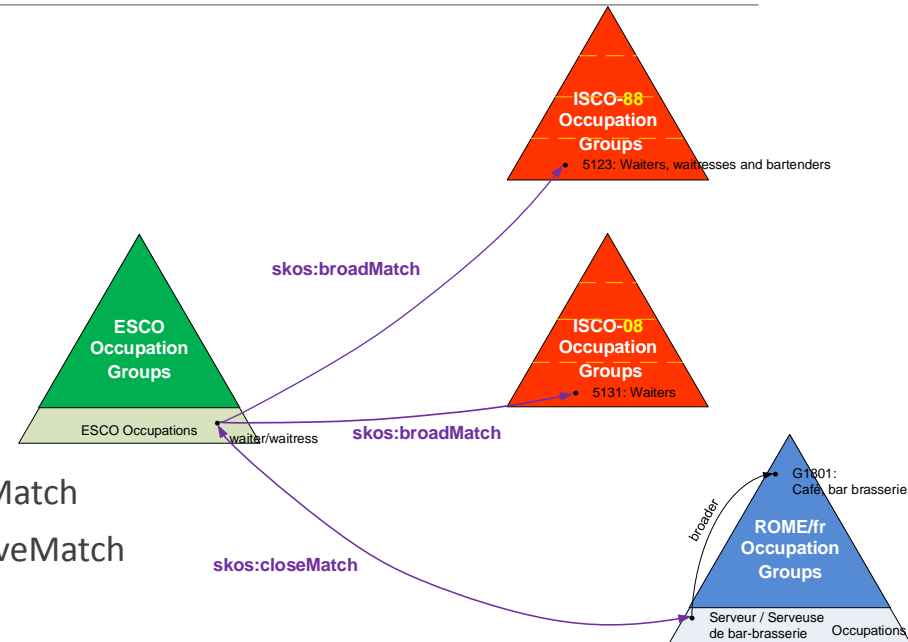
Occupations

An ecosystem of vocabularies

ISCO: International Standard Classification of Occupations

NACE: Statistical Classification of Economic Activities in the European Community

CEFR: Common European Reference for Languages

FoET: Fields of Education and Training

EQF: European Qualifications Framework

A "hub" Taxonomy – How will it work?
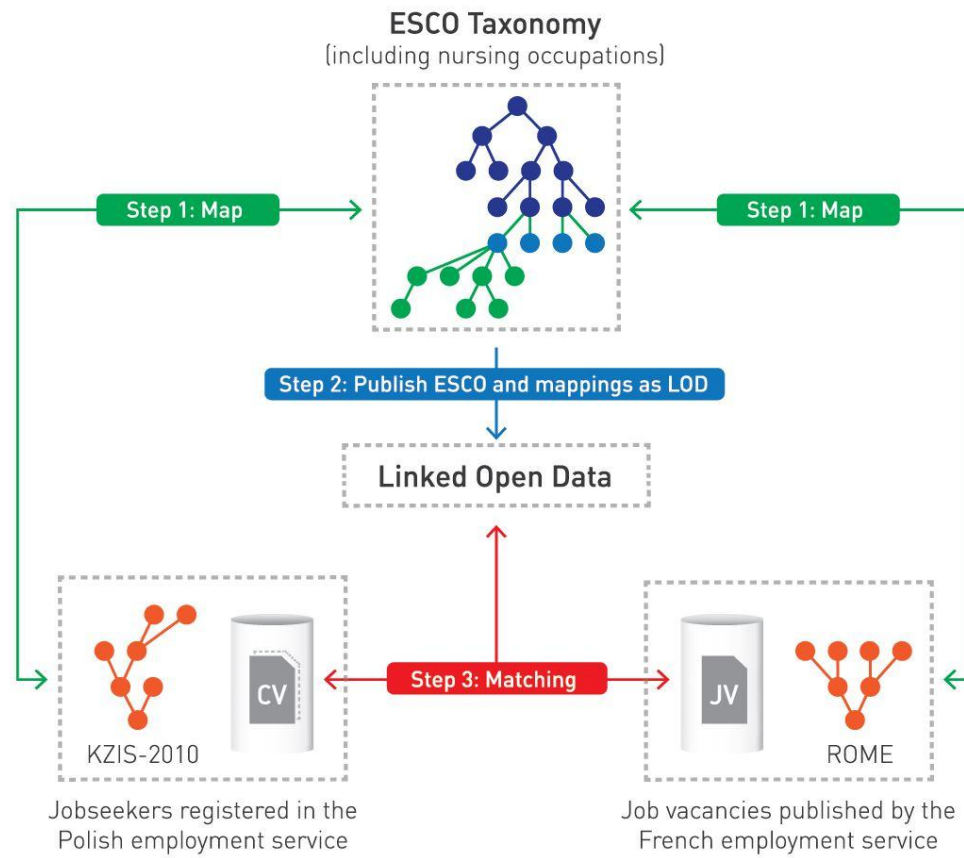
Publishing ESCO as LOD

The main drivers for LOD:

- Easy to link to other semantic assets
- Easy integration into existing ICT systems
- Ensure content is managed and quality assured before publication
- Ensure that continuous updates of the taxonomy do not impose an overhead for the EC
- Ensure that licensing, versioning and provenance are in place

The ESCO architecture (snapshot)

Current Status (software)
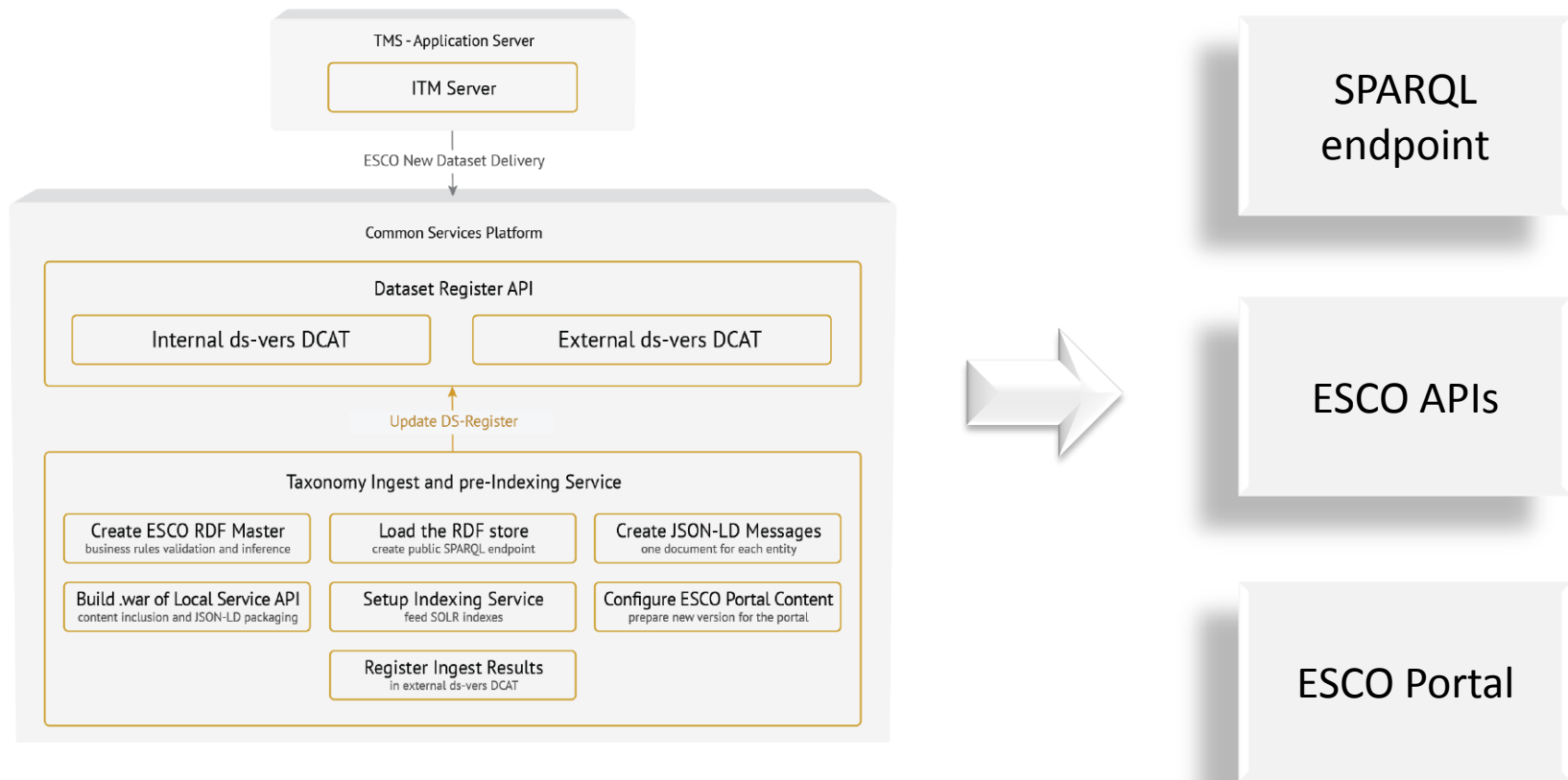
Installed release in PROD
- Includes a 1st version of an LOD API with HTML content
- For example data.europa.eu/esco/occupation/463

The ESCO Data Model (full LOD version)
- data.europa.eu/esco/lod/model

Next versions (currently in ACC)
- SPARQL endpoint
- Final LOD API with RDF and JSON-LD content
- In PROD in a few weeks

Next steps

Finalize the APIs (LOD, Central Service, Mapping, Versioning)
◦ Local service API under testing by Europass team and PrES

Finalize the ESCO content (the remaining 16 NACE sectors)
◦ Online consultation process

Prepare "fit-for-purpose" pilots, to assess the quality of the classification

Work on the Qualifications pillar (NQDs as Open Data, Registers of Awarding Bodies and Work Context)

Discussions with LinkedIn to use part of the content (ICT sector)

Conclusions

The only multi-lingual classification in the Labour Market

A hub for mappings to National Occupational Classifications

A standard for Labour Market stakeholders

Published as Linked Open Data
◦ "Vocabulary ecosystem" SKOS-ified and provided as LOD
    ◦ (ESCO keeps internal copies)

For more details

ESCOpedia
◦ https://ec.europa.eu/esco/escopedia

Main publications and lectures

◦ Le Vrang, M.; Papantoniou, A.; Pauwels, E.; Fannes, P.; Vandensteen, D.; De Smedt, J., "ESCO: Boosting Job Matching in Europe with Semantic Interoperability," Computer , vol.47, no.10, pp.57,64, Oct. 2014, doi: 10.1109/MC.2014.283

◦ De Smedt J, Papantoniou A.– "The ESCO platform for a collaborative NKOS development" –13th Networked Knowledge Organization Systems (NKOS) – Digital Libraries 2014 Conference London, September 2014

◦ Le Vrang, M.; Papantoniou, A.- "ESCO - enhancing semantic interoperability in the labor market and in education/training throughout Europe", European Data Forum 2014, Athens, Greece, March 2014.

Thank You! – Questions?

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