Linking learning outcomes of qualifications to ESCO skills

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Introduction: Why linking qualifications to skills?

- to bridge the gap between education and employment → using ESCO to **identify and analyse** which skills are related to a particular qualification (further used to indicate matches and/or mismatches with skills needs of occupations and sectors);
- helps making **qualifications more transparent across Europe** and allows educators, students and employers aligning their needs
- Demonstrates how ESCO classification can be used to **enrich the descriptions of educational curricula**;
- Help the **translation, comparison and/or review** of qualifications
- The use of AI **reduces the costs and resources** needed to perform a similar activity

Why is ESCO relevant for qualifications?

ESCO is a common reference language that supports:

- transparency
- comparison,
- identification and
- analysis of the content of a qualification.

Describe & understand Learning outcomes of qualifications

Skills & knowledge as common factor

Enhance personalised career guidance services

Recommend personalised career paths & learning

Support validation of informal/non-formal learning

Digital badges/micro-credentials

How to use ESCO for qualifications/training?

- Use the occupational profiles as a starting point
- Get inspiration from the skills and competencies described in ESCO
- Make use of the IT tool (soon to be provided publicly) on referencing learning outcomes of qualifications to ESCO skills
- Use ESCO skills for developing skills intelligence (skills in high demand) & use the results to inform curricula reform

Curricula reform use case

Public administration of Emilia-Romagna region, Italy

AIM:

Use ESCO to assess the skills and occupations relevant for the big data sector in order to adapt the curricula on offer in the region

HOW:

Quantitative & qualitative analysis

Identify occupations & skills from the sector based on ESCO via analysis of job vacancies

Survey to employers, education providers and teachers (universities + VET)

Focus groups on most important skills

RESULTS:

Understand the regional skills landscape

Validate the occupations & skills required by the labour market & supplied by universities

Work towards public-private partnership on skills development

Provide digital badges

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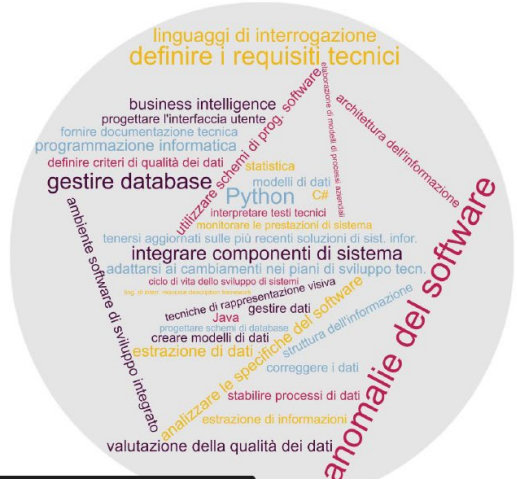
In practice:

Le Skills

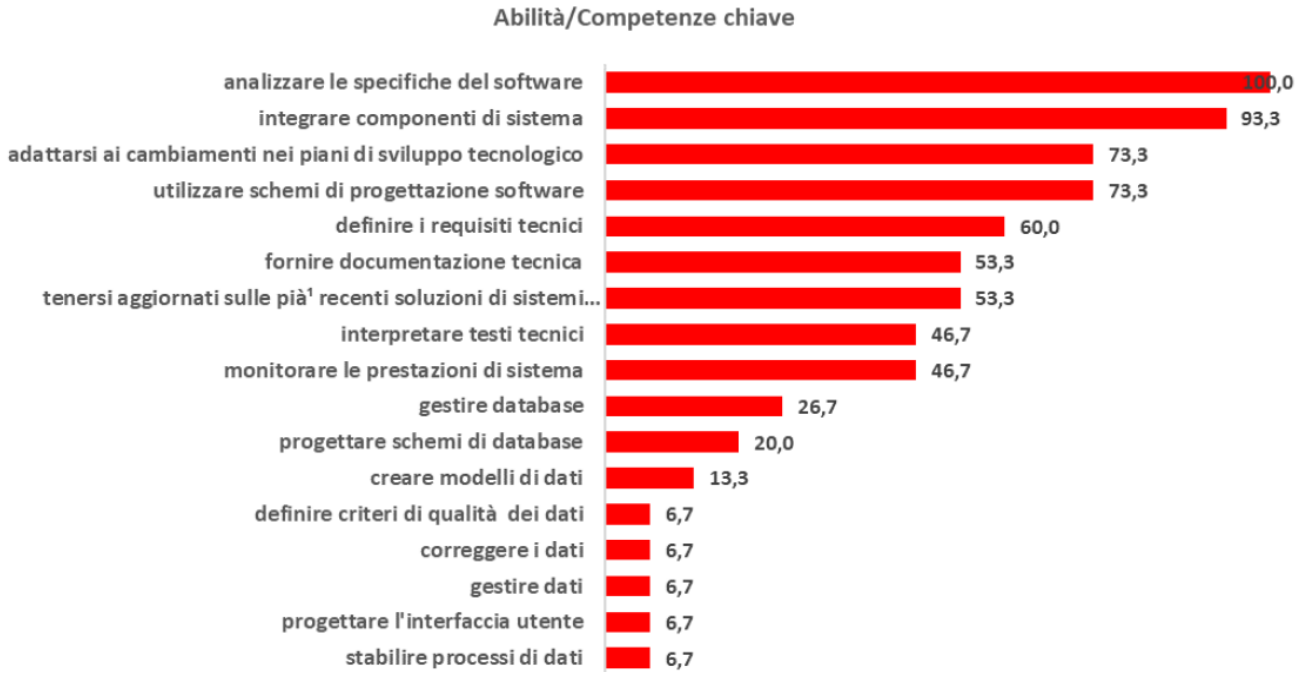
Imprese

Docenti



Competenze chiave

Figura 3.5. Le 17 Abilità/Competenze chiave per lo sviluppo dei *Big Data*



- Understand the skills demanded by employers and skills supplied by education providers and where the mismatch is
- Work with education providers to update their curricula accordingly in the big data sector

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Curricula reform use case

Politecnico di Milano, Italy
European credit clearinghouse for opening up education (ECCOE) project

AIM:

Use ESCO to describe or tag learning outcomes of Massive online courses (MOOCs)

Compare content of training courses to ESCO skills

Make the link explicit

HOW:

Manual process by education staff

Use the ESCO portal to look at skills, use search & browsing function

RESULTS:

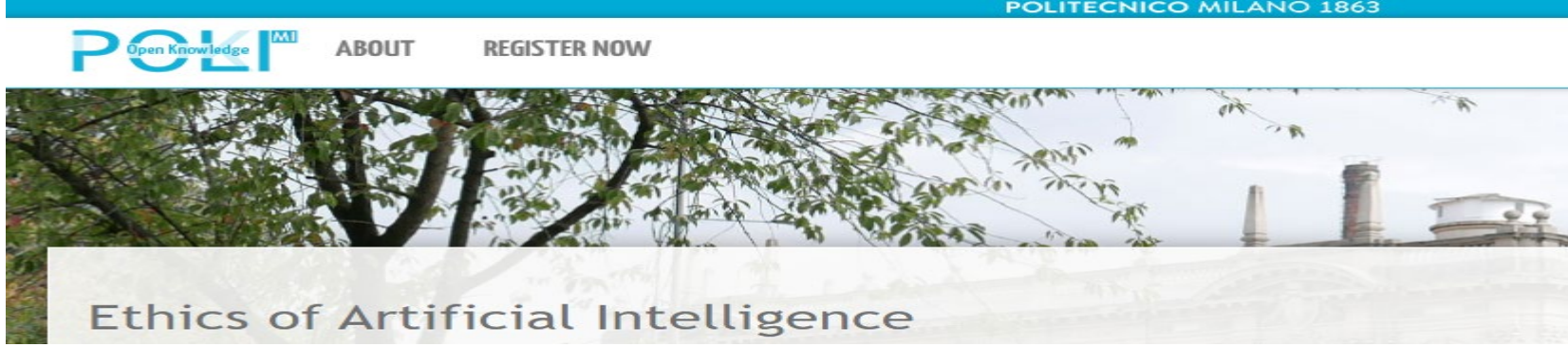
Annotation & new LO

Annotate MOOCs with ESCO skills to facilitate interoperability

Facilitate the work of training providers when creating Learning outcomes

In practice:

- Tagging courses content with ESCO skills results in references to an EU common standard
- It facilitates interoperability of learning opportunities among stakeholders.
- Supports the recognition of online learning opportunities



INTENDED LEARNING OUTCOMES

By actively participating in this MOOC, you will achieve different intended learning outcomes (ILOs).

1. Week 1:
   - Describe the reasons for an ethical analysis applied to AI.
   - Recognize how the notion of responsibility is challenged when designing and using AI tools.
2. Week 2:
   - Identify the ethical and social impacts and implications of AI.
   - Recognize and analyze ethical and social issues inherent in AI by means of examples and case-studies analyzed with the use of the main ethical frameworks.
3. Week 3:
   - Learn how to analyze problems through an ethical lens.
     ESCO: address problems critically
   - Use critical skills in clarifying and ethically analyzing AI in different domains of life.
     ESCO: think analytically
4. Week 4:
   - Critically analyze the current policies for AI.
   - Use ethical and socially responsible principles in your professional life.
     ESCO: follow ethical code of conduct | ESCO: adhere to organisational code of ethics | ESCO: values

Useful links:
First pilot
Second Pilot
Third pilot

Background: LO-linking platform

- **Pilot project for linking learning outcomes of qualifications with ESCO skills** (LO-linking platform) was conducted in 3 phases (started in 2019)

13 Member States and organisations:
- 9 EU MS
- 2 stakeholder organizations: ETUC and EURASHE
- 1 EU agency: The European Training Foundation (ETF)
- 1 international organisation: The Inter-American Development Bank

Second phase of the pilot project:
- Covered **367 qualifications in 9 languages** from different EQF levels (HE+VET)
- **241** qualifications established mappings
- More data was needed

Third phase of the pilot project:
- **1038 qualifications**, out of which **443** qualifications established mappings to ESCO skills
- 12 Languages

20 Member States and organisations:
- 7 EU MS
- 7 Training providers
- 4 private companies
- third country organisation: the Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- 1 EU agency: The European Training Foundation (ETF)

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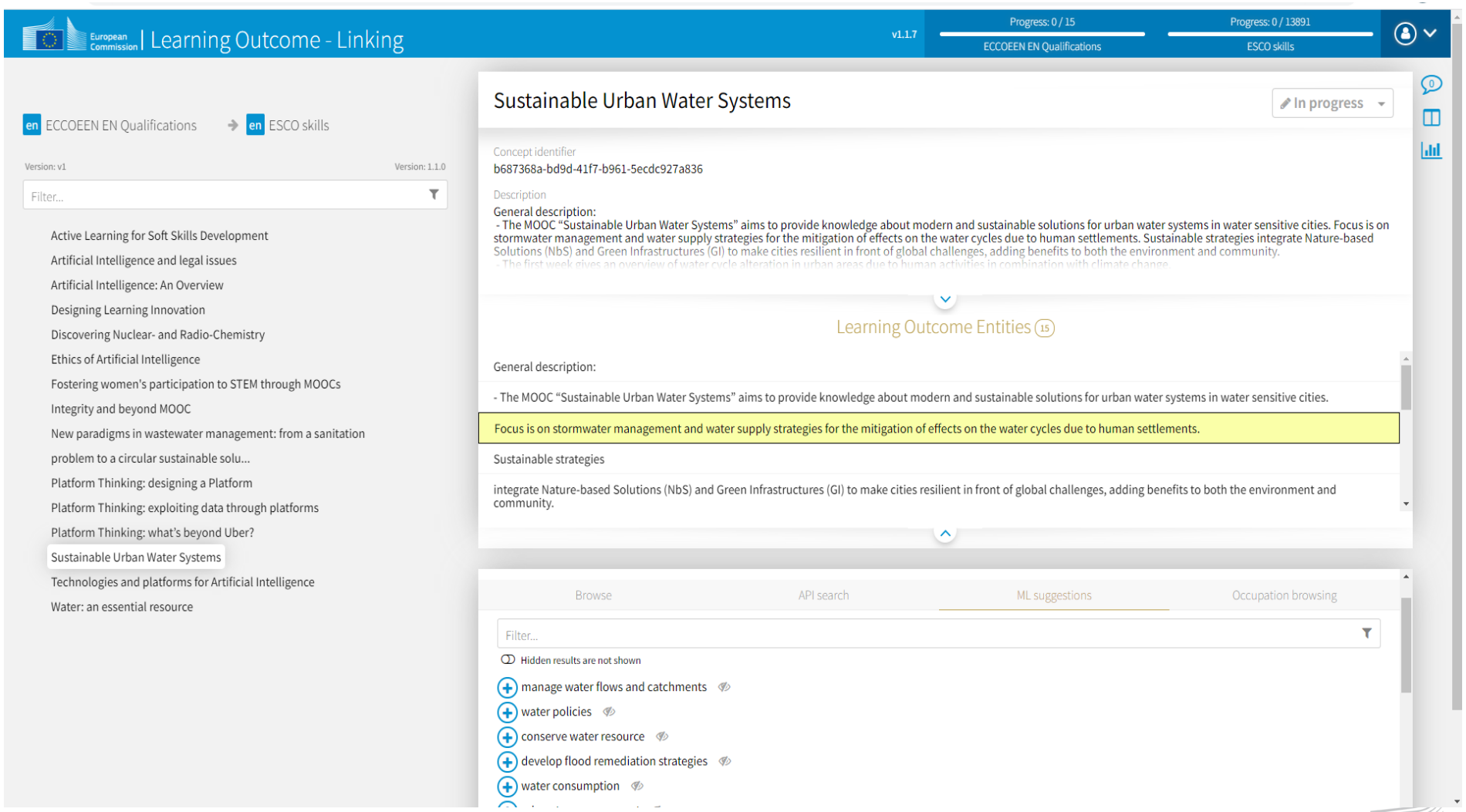
ESCO qualifications pilot

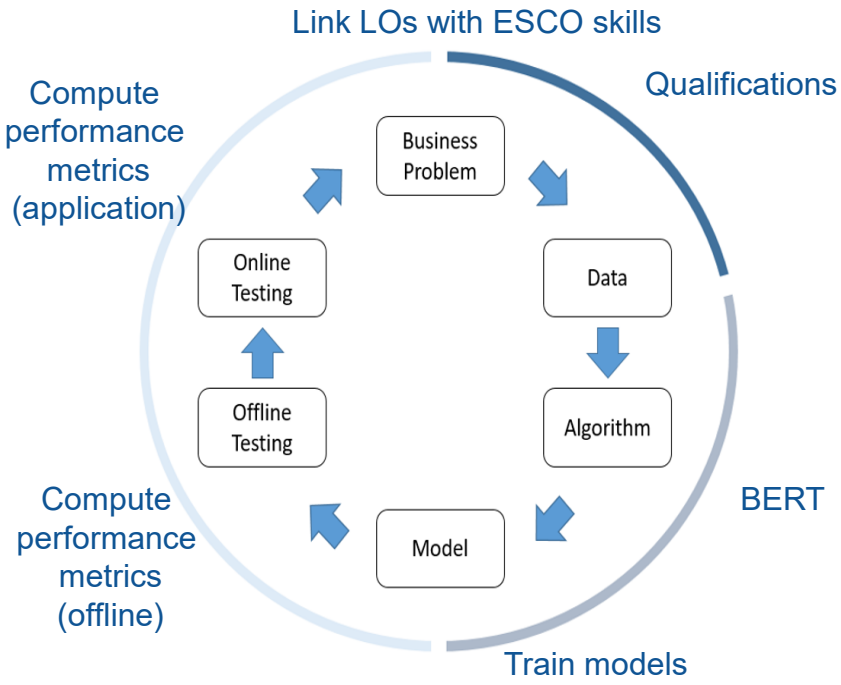


Background: LO-linking platform

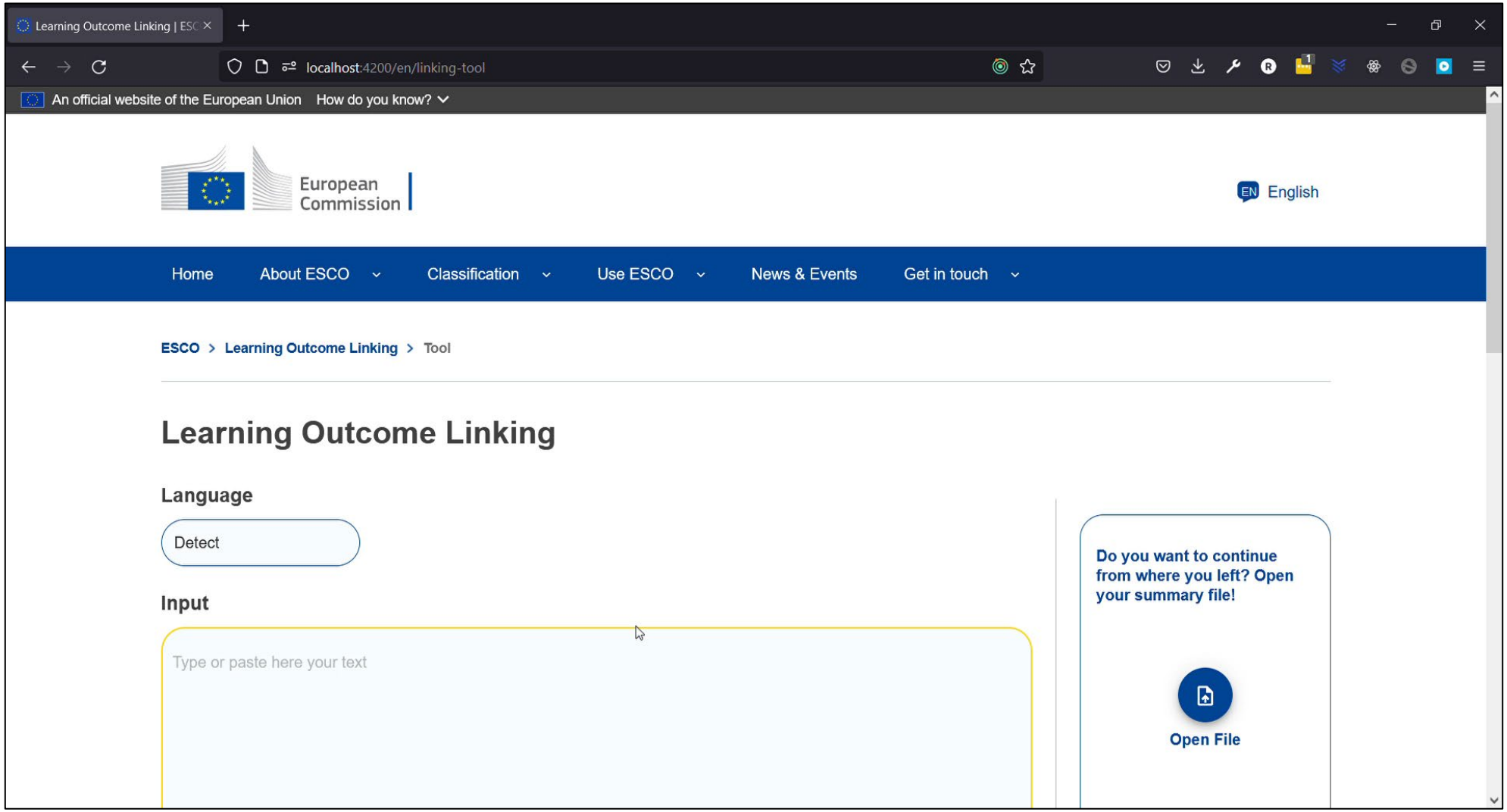
Features of the IT tool supporting automated linking of Learning Outcomes of Qualification to ESCO skills :

- **Second phase:** basic **search algorithm** + first **standard NLP algorithm** based on word2vec
  - More data → **Two additional models** built based on **the Sentence-BERT algorithm** and the **semantic embedding mapping algorithm**

- From the third phase: **multilingual sentence splitter model** (a machine learning model that learned to split multilingual qualifications based on a set of already split qualifications)



Next steps – Open Access Mapping Tool



Thank you

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