D-Reskill@U
Project Result 3 - Final Report

<u>Report Outline</u>

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1. Introduction and Context

PR3 is led by UNIMI and provides the detailed contents of a comprehensive training program on the innovations brought about in lifelong learning and agile continuous education at universities by the D-RESKILL@U project. This training program is intended for university faculty members, and it is focused on supporting students' lifelong learning activities through novel forms of career guidance using skills alignment technologies and methodologies.

University faculty members are becoming cognizant of the need to increase their awareness regarding learner-centred approaches, and this is becoming increasingly pressing as they adapt to lifelong learners who come with a diversity of previous work experience and academic trajectories. In familiarising with the aims of D-RESKILL@U, teachers and trainers need to learn more about the emerging movement of skills alignment methods and technologies and the ways in which higher education institutions should present their training offers in accordance with its principles and also to maximise their impact.

The impact of the planned training program for university teachers concerning the skills alignment methodologies and technologies, micro-credentialing, and the use of novel forms of virtual career guidance tools have been defined with the aim of significantly increasing the offerings of courses that are demand-driven and aligned with the needs of the labour market, as well as broader societal needs. Moreover, the training supports the shift towards more learner oriented and career adapted practices, which is becoming vital as public institutions face competition from schools or even corporate universities already orienting towards these issues and needs.

2. Objectives and Aims

On the basis of the context and the needs, as described in the previous sections, the training sessions for learners have been designed with the aim of teaching:
-   how to divide their course offerings into stackable micro-credentials, which may lead to a degree;
-   how to align their course contents according to the ESCO ontology to allow for a mapping that will serve to increase the reach of their offerings and to further boost their demand.

A specific survey assessed the level of knowledge and the degree of usage of a skill-based approach to higher education and the ESCO ecosystem. On the basis of the results of the above-mentioned survey specific activities have been designed and implemented for the training participants.

On the following pages, you can find the main results of the event *"Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability"* that took place from 13 to 15 September 2023 at the University of Catalunya (Spain). The event was attended by 46 participants, most of which were lecturers from university partners of the project.

Moreover, at the end of the document, you can find the main results of the event "Leadership school on the strategic approach to skills, competences and qualifications in higher education" that took place from 24 to 26 October 2023 at the Budapest University of Technology and Economics (Hungary).

3. Project Results (PR3)
PR3 is led by UNIMI and consists into three tasks that have been realised as the following training sessions:

PR3.T1. "Skills Alignment and micro-credentialing"

This task has been led by BME and includes faculty members of UOC, UNIMI and Sorbonne Université. The aim of this training is to prepare university /faculty who provide lifelong learning offers to become familiar with:
-   **the concept of "Skills Alignment approach"**, between the learner and the job. The "Skills Alignment approach" means to conduct a self-assessment to assess the skills and knowledge needed for a job (in the frame of D_Reskill Project@U, the ESCO database has been used for defining the skills);
-   **the concept of "Micro-credentialing"** for course design and curriculum renewal/course updating. "Micro-credentialing" is a form of training which certifies the learning outcomes of short-term learning experiences. They offer a flexible, targeted way to help people develop the knowledge, skills and competences they need for their personal and professional development. The micro-credential movement is currently transforming the higher education landscape as pressure from society is moving toward lifelong learning and continuous education for employability.

The overview on the European Year of Skills, with a view on existing initiatives, frameworks

and tools and future/evolving solutions on micro-credentials and skills alignment approaches was discussed in the <u>"European Year of Skills Masterclass"</u>, (**Session 2**, Day 1, Event "Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability").

<u>Specifically on micro-credentials,</u> with the contribution of **Ildiko Mazar - European** Digital **Credentials for Learning implementation support at NTT DATA and Euro Learning Model**, the participants saw the evolving scenario of increasing the popularity of micro-credentials and learnt the value of verifiable digital credentials through the <u>Euro Learning M</u>odel, as European Digital Credentials for Learning. The participants learnt how to use micro-credentials, from developing experience portfolio to verifying credentials, from widening access to talent, to matching jobs to skills. In the same session, participants received an overview on the future of microcredentials and technology's role, including the role of the Euro Learning model in supporting institutions in offering verifiable digital credentials.

<u>Specifically on ESCO (the skills ontology used in the D_Reskill Project@U),</u> **Jan Luts, Senior Data Scientist at NTT Data & ESCO,** presented to participants the ESCO ecosystem, its goals and the structure defined in pillars (occupations pillar, skills pillar). Participants learnt about the ESCO development process (based on desk research, review by stakeholders and validation by Member States) and the new the ESCO qualification pilot using artificial intelligence, for an improved translation and level of granularity and sectoral coverage, as well as other improved solutions to increase the feasibility of the usage. During the same session, a high description of European framework and tools was done, as EURES for job-matching and searching among European Countries and Europass (career guidance).

Moreover, specific interactive activities have been designed for the participants with the aim of testing, assessing and learning the various functionalities of the dynamic mock-up, and performing the skill assessment and micro-credentialing. These interactive activities have been performed during the event: "Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability". For the details of the functionalities presented, please refer to the section: <u>PR3.T3 "Achieving an immersive and satisfying user experience of the developed software"</u>.

This task has been led by UNIMI and includes personnel from Bullini EI (ex-PIXIS/MeshUp Education) and faculty members from BME.

Through these training sessions, the lecturers can assess the level of:

Innovation of the approach.

The innovation consists:

i) in the capacity of linking the skills with the specific occupations;

ii) in the opportunity to match skills in an exact way (using a common ontology/framework);

iii) in increasing the link between academic and industry fields in a more effective and precise way.

Agility   in   the   approach.

The Agility consists of:

i) the opportunity to parcell the training according to specific needs;

ii) the opportunity of changes of the learning path for the learners.

Feedback from participants

The innovation and agility of the approach were assessed by participants at the end of the third day training session, as reported below. As defined above, in the questionnaire, by innovation we mean in the capacity of the D-Reskill@U mock-up in linking the skills with the jobs, in matching skills in an exact way (using a common ontology/framework) and in linking the academic and industry fields in a more effective and precise way; and by agility we mean the opportunity to parcel the training according to specific needs (micro-credentialing) and the opportunity of changes of the learning path for the learners.

4.32 the average rate (scale from 1 – not innovative at all to 5-very innovative) from participants on the question: "How innovative would you consider the approach presented during this 3 day training (based on career guidance software based on Skills Alignment methodology)?", as well as, the same **4.32** average rate (scale from 1 - not agile at all to 5 - very agile) was reached from participants on the question: "How agile would you consider the approach presented during this 3day training (based on career guidance software based on Skills Alignment methodology)?

The **"Lifelong Learning and Agile Continuous Education for Employability at the UOC"** (Session 1, Day, 1, Event "Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability") presented

the way institutions can put Skills Intelligence and Agile Continuous Education for Employability into practice.

Specifically, with the contribution of **Angels Fito - UOC President**, participants were presented with an overview of the social and economic context and the role of the University for lifelong learning.

The complex social and economic context is characterised by digital transition, climate crisis, and evolving demographics that are altering the social and environmental dynamics. New generations immersed in digital technologies are reshaping the way we learn, and it could be considered also a markable opportunity to redefine education.

The role of universities has been explained as an actor that can govern this transformation, preventing structural barriers to learning. The presence of universities in the lifelong learning scenario is important because of their neutrality and plurality, to make transition towards a greater digital and sustainable model. Universities must ensure not only professional skills but also that their graduates are prepared to decide and manage their professional career.

With the contribution of **Carmen Pages - Head of the Unit of Skills Forecasting and Labour Market Analysis at UOC**, participants were introduced to UOC's unique strategy for agile continuous education which increases employability, and the role of the unit for skills forecasting and labour market intelligence. The contribution underlined how to focus on data and how to integrate labour market intelligence in the teaching portfolio to assess skills needs.

During **"The Case for Institutional Transformation: Integrating Skills Intelligence into Higher Education Development"** (Session 6, Day 2, Event "Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability", **Day 2**), innovative tools and solutions have been presented by the team of the Unit for Skills Forecasting And Labour Market Analysis(UPAL) of the UOC.
The tools and solutions developed by the Unit for Skills Forecasting and Labour Market Analysis (UPAL) presented during the session would show new ways to connect the universities with companies, organisations and professionals, to foster continuous dialogue, providing relevant and timely information on labour demand, required skills and lifelong training needs in different sectors and jobs.
The tools and solutions presented were:
i) a solution of Labour Market Intelligence,
ii) GPS tool to guide the need for re skills in the framework of ESCO and Leica,
iii) Projecta't ("project yourself") with tools for professional guidance services and for labour market analysis.

With the **"European Year of Skills Masterclass"** (Session 2, Day 1, Event "Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability"), Mattias De Bièvre presented DS4Skills a skills data space and ecosystem for a personalised skills matching. The improved version of your text could be:

Additionally, Anastasia Pouliou, a renowned specialist in qualifications, credentials, and the future of Vocational Education and Training (VET), showcased the initiatives underway at Cedefop. Emphasizing a collaborative approach, Cedefop is currently extending an invitation to VET institutions across 29 countries to join as reference partners. This initiative is aimed at enhancing Cedefop's network as it approaches its first 25 years, furthering the exchange of knowledge and providing policy advice on VET within Europe.

During **"The role of Open Badges in Higher Education"** (Session 5, Day 2, Event "Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability"), participants have been introduced to the role of Open Badges, as well as they experienced how to create an Open Badge.

Feedback   from   participants.

4.38 the average rate (*scale from 1- not important at all to 5- very important*) from participants on the question: "How would you rate the importance of issuing and collecting Open   Badges   In   Higher   Education?"

4.31 the average rate (*scale from 1- not important at all to 5- very important*) from participants on the question: "How would you rate the importance of stackability in the World of Microcredentials?"

During the session, the participants had the opportunity to create their own Open badge, following all the specific steps for its creation. At the end of the session, during the Q&A session, the participants have deepened some specific topics: the level of certification of the certifier, the presence of a European repository, the way to link Open Badge to web presentation of competences (eg. On LinkedIn).

This task has been led by Bullini EI (ex-PIXIS/MeshUp Education) and includes faculty members from the 4 universities. Bullini EI has trained university staff in the use of a career guidance software (the D-Reskill mock up), for their own purposes, as well as from the viewpoint of the learners.

Specific interactive activities have been designed for the participants with the aim of testing, assessing, and learning the various functionalities of the dynamic mock-up, during the 3 day training titled "Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability".

In the following sections, the specific interactive activities have been described.

The **"Modelling of the D-Reskill Tool"** (Session 3, Day 1, Event: "Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability",) was held with the aim of presenting the digital career guidance software mock-up **from the perspective of the learner**.

During this session, the experts show a practical example for Analytical Chemists from Sorbonne University on how to match occupations and skills. In the second part of the session, experts ask the audience to do the same task themselves but with occupations of their choice.

Feedback   from   participants.

4.00 the average rate *(scale from 1- not useful at all to 5- very useful)* from participants on the question: "Assuming the perspective of the learner, how useful would you consider the digital career guidance software mock-up presented in this session, <u>with the aim of developing professional skills for the labour market</u>?"

The **"Building a Smart Catalogue for an impactful UX"** Session (Session 4, Day 2, vent: "Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability") showed **how to create European Learning Model (ELM)/ESCO compliant training description from an existing training,** with the specific interactive Activity B1. In the first part of the session, it has been presented the digital career guidance software mock-up, specifically focused on the functionality to develop a training from an existing description of the training and focus on how to compare the training with a target   occupation.

In the second part of this session, participants were invited to perform the same tasks, with occupations of their choice.

Feedback from participants.

4.06 the average rate (*scale from 1 - not useful at all to 5 - very useful)* from participants on the question: "<u>Assuming the teacher's perspective</u>, how useful would you consider the digital career guidance software mock-up presented in this session, with the aim of

designing training to develop professional skills?"

3.69 the average rate *(scale from 1- not adequate at all to 5- very adequate)* from participants on the question: "Based on the exercise conducted, how do you consider the existing descriptive information on the training: are they adequate or should it be expanded?"

Many participants agree on the existing descriptive information; some others suggest adding short videos, and course output examples.

In the second interactive activity B2 of the same session, the participants learnt how to create micro-credentials from an existing training. In particular, experts demonstrated how to transform existing training (Cosmetic Chemistry training) into short form course offering, linked to the ESCO ontology, which could then be offered as a micro-credential; and participants were asked to perform the same tasks.

Feedback from participants.

4.23 the average rate (*scale from 1- not important at all to 5- very important)* from participants on the question: "How would you rate the importance of "Micro-credentialing" for course design and curriculum renewal/course updating?"

4.38 the average rate (*scale from 1- not important at all to 5- very important)* from participants on the question: "How would you rate the importance of "Micro-credentialing" with the aim of developing professional skills for the labour market?

During the session, participants assessed the strengths and weaknesses of the approach; They considered the necessity of improving the ESCO database to cover more competences and skills, the importance of the functionality of the user to suggest new skills and competences; the opportunity of the approach of being used by all teachers and the usefulness for developing skills important for the labour market.

Final results
Feedback from participants.
Analysing the feedback from participants on the final survey, some specific results are noted:
1) the importance of sharing the pathway taken so far. In the final survey, the average rate of utility perceived by participants in sharing the pathway so far is 4.68 *in a scale from 1- not useful at all to 5-very useful*;
2) the opportunity to increase the knowledge on the ESCO database and on the overall approach;
3) the understanding of the gap to fill to improve lifelong learning and agile continuous education approach, as well as new ideas and developments;
4) the will to continue the path taken.
Moreover, the opportunity to discuss with other European colleagues has been truly appreciated.

Focus | Leadership school on the strategic approach to skills, competences and qualifications in higher education

In continuing the masterclass on the same topic organised in September, the BME hosted a leadership school for middle and senior managers of the partner institutions of the Digital Re-Skilling@Universities project led by the Sorbonne University (including the Institut Parisien de Chimie Moléculaire). The aim of the leadership school taking place between 24 and 26 October 2023, entitled Skills Intelligence Strategies for Career Guidance in Higher Education: Lifelong Learning and Agile Continuous Education for Employability, was that the participating 20 program and organisational leaders (from the BME, UOC, the University of Milan and Sorbonne) be able to examine from a strategic point of view the importance of the multilingual European classification of skills, competences, qualifications and occupations (ESCO), the significance of the training content to be transformed into modular and flexible forms of training using skills alignment technologies and methodologies and resulting in the possibility of receiving a verifiablemicro-credential, and the details of the European Year of Skills.

The event was opened by Dr. Koczkáné Dr. Emília Csiszár, Vice-Rector of International Affairs and offered clearly distinguishable themes for all three days. On the first day, the topic was research and development of skills-based approaches to education and employability, during which representatives of all participating universities spoke about their own institution's efforts in this direction. After that, related strategies and policies were discussed, with particular regard to the LLL strategies of the host country of Hungary, which were discussed by Professor András Benedek. The first day was closed by Hal Plotkin (who, among other things, was the Obama administration's senior education advisor) with a subjective analysis of the topics covered during the virtual lecture series organised by the project, expressing his insights as an American outside observer on the issues related to a skills based approach which is affecting European higher education.

On the second day, the cooperation and expectations of industry and higher education came into focus, where Dr. Márta Fischer, director of the Institute of Modern Languages, spoke about the issues of language competences in the labour market and the nuanced approach to the competences themselves. Another invited speaker, Dr. András Nemeslaki spoke about the cooperation between the Magyar Nemzeti Bank in understanding the hidden entrepreneurial skills which impact the Hungarian economy and how they might be taught at BME and beyond, while Roland Löffler, owner of a supply chain management company, spoke about employers' criteria in skills-based hiring. In line with the theme of the day, the smart catalogue developed during the project was also processed from the point of view of usability for employers. Since the primary goal of the leadership training was to provide the participants with the widest possible further training, the participants closed the second day with a group decision-making training as a critical skill for higher education leaders, led by invited coaches.

On the third day, the participants of the leadership school joined the technology diplomacy workshop of the European Engineering Learning Innovation and Science Alliance (EELISA), which was co-organised by the D-reskill team and project representatives were invited participants to the round table discussions featuring other distinguished speakers. The event provided the opportunity to serve as the final multiplier event for the project as many guests were invited from outside of the partnership. Although the attendance was lower than

expected, the event provided great impact in terms of D-reskill visibility through many participants from different BME faculties as well as a high number of students.

This event was also part of the efforts of the D-reskill leadership school organisers to provide upskilling in a less prominent but all the more important areas of technology diplomacy in engineering and interdisciplinary education, and its political, sociotechnical and cultural aspects.