

Issuing e-sealed micro-credentials

Online event
17 November, 10:00 CET



Co-funded by
the European Union





THE FUTURE OF MICRO-CREDENTIALS

INSIDE AND OUTSIDE UNIVERSITY ALLIANCES

ANTHONY F. CAMILLERI

KNOWLEDGE INNOVATION CENTRE

HOW IS THE
LANDSCAPE
CHANGING?

AI

...AI

.....AI

HOW IS THE
LANDSCAPE
CHANGING?

Micro-Credentials for
Virtual Mobility

Evolving Trust Landscape

Diverging Employer and
Institutional Recognition



AI TODAY



Massively accelerate our ability to ingest and compare information



Massively accelerate the process of media creation




Replace many forms of Tutoring



Lower Costs of Content Translation

IN THE SHORT-TERM AI WILL ALLOW US TO

- Brain
- ▼ **Course** ○
- Interactive Video
- Glossary** ●
- Concepts Cards** ●
- **Quiz** ○
- Flashcards** ●
- Summary** ●
- Learn on the go** ○
-  **Summary & submit**

 **How Exactly Is the Human Brain Organized?**

 **Watch Later**  **Share**



See ker

HUMAN

☰

Glossary

Brain

Course

Glossary

Concepts Cards

Quiz

Flashcards

Summary

Learn on the go

Summary & submit

> Anatomy

> Auditory cortex

> Brainstem

> Cerebellum

> Cerebral cortex

> Cerebrum

> Cognition

> Corpus callosum

> Electroencephalography

ned to help you learn the main topics and ideas covered in your course.

The cerebrum is also known as the ____ brain.

Turn

Card 1 of 10



☰

Quiz

Brain

Course

Glossary

Concepts Cards

Quiz

Flashcards

Summary

Learn on the go

What is the name of the structure that connects the two sides of the brain?

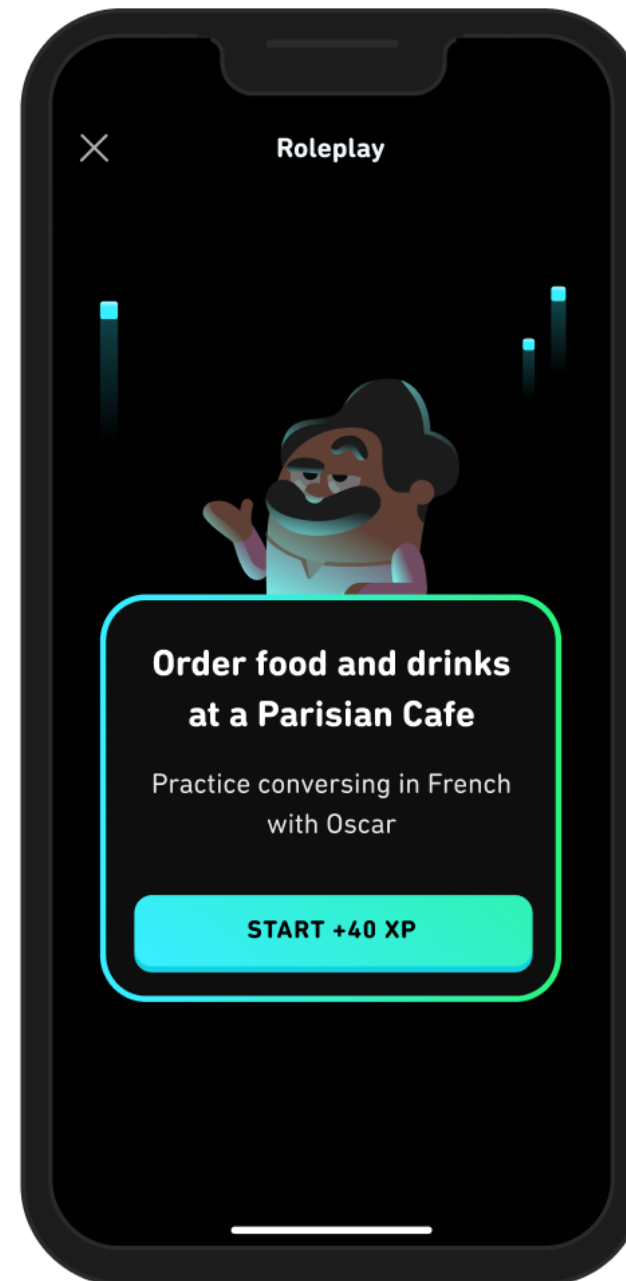
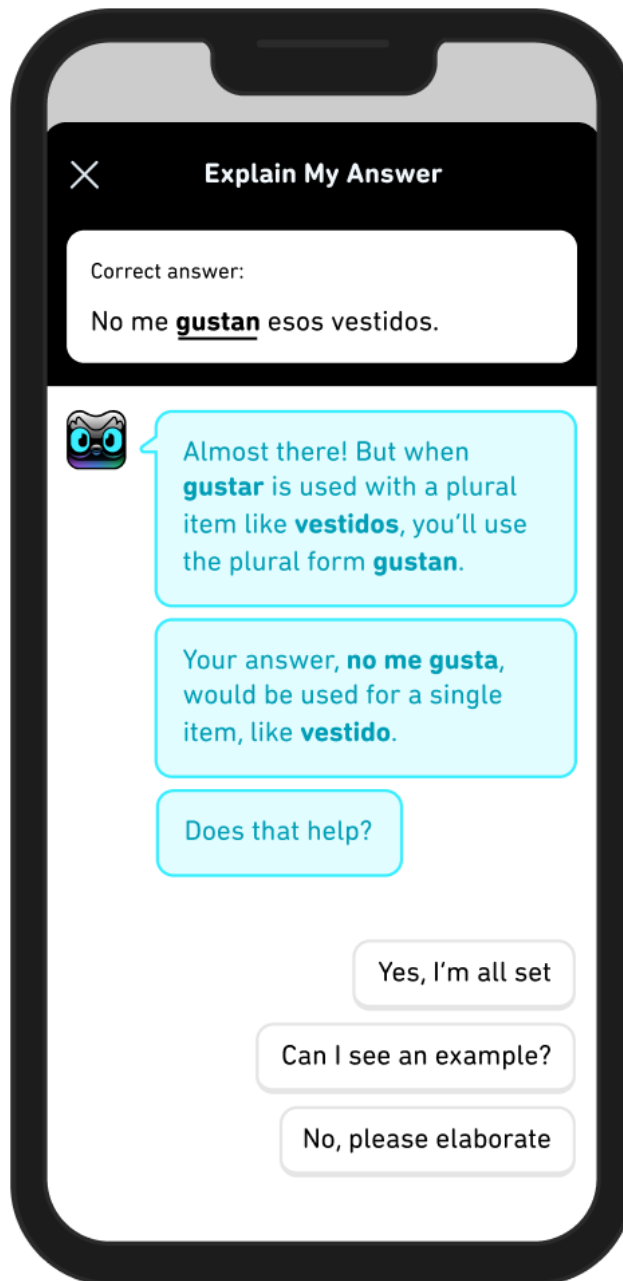
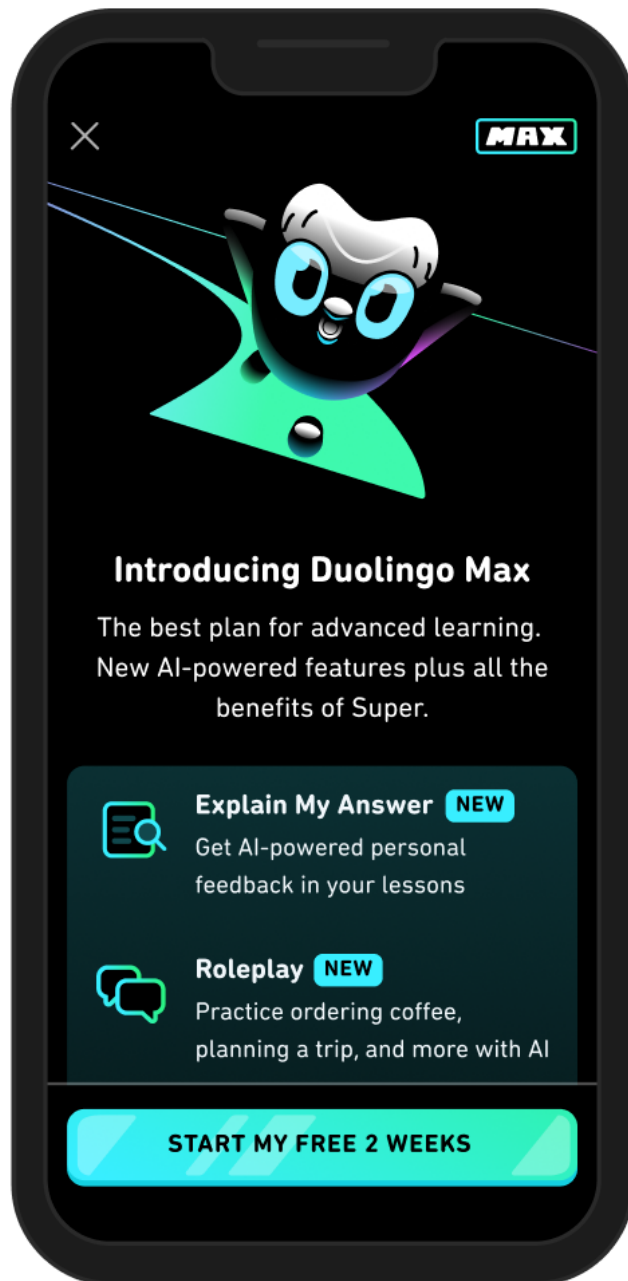
Prefrontal cortex

Corpus Callosum

Limbic system

Pituitary gland

Check





This conversation is recorded and viewable by your parent and teacher.

Can you just tell me the answer?

It's important that you learn how to do this yourself! What do you think you need to do to multiply 2 by $\frac{5}{12}$?

They need the same denominator.

That's a good thought, but in this case, you don't need to find a common denominator because you're multiplying, not adding or subtracting. What else could you try?

Type message (do NOT share any personal data)



Clear chat



This conversation is recorded and viewable by your parent and teacher.

Let's start by discussing some details about your class. What grade level and subject do you teach? And what's the topic you want to create a lesson for?

I teach sixth grade English Language Arts. I want a lesson to help students learn how to identify, summarize, or explain the main idea using supporting details in an expository text.

That's a great topic! Have your students had any previous lessons on identifying the main idea or summarizing expository texts?

No

Type message (do NOT share any personal data)



Clear chat



This conversation is recorded and viewable by your parent and teacher.

Tell me more about your character. What are her interests, talents, fears, and dreams?

She likes dogs. She's good at writing.

She's scared of the dark. She dreams about changing the world.

That's a great start! Now, let's think about what kind of story we want to tell. What kind of goal or problem might your character face?

Type message (do NOT share any personal data)



Clear chat



AI INTERPRETATION



Massively accelerate
our ability to ingest and
compare information



Integrate different materials and methods from hundreds of
courses

Massively accelerate
the process of media
creation



package learning in multiple formats: textbook, stories,
presentation, video

Replace many forms of
Tutoring



Make personalised tutoring part of every homework assignment

Lower costs of
Translation



Enable new Forms of Multi-Lingual Learning

IN THE SHORT-TERM AI WILL ALLOW US TO



“AI will become the calculator for micro-credential design”

Inspired by...Erik Brynjolfsson – Professor of Economics & Information
Technology at Stanford

HOW IS THE
LANDSCAPE
CHANGING?

Micro-Credentials for
Virtual Mobility

Evolving Trust Landscape

Diverging Employer and
Institutional Recognition

WHAT IS THE STATUS OF MICRO-CREDENTIALS TODAY?

33

European University Alliances

Currently implementing or planning to implement micro-credentials

Source: 2023, Making Interoperability Work,
HochschulForum Digitalisierung

WHAT IS THE STATUS OF MICRO-CREDENTIALS TODAY?

14

European Countries

Have policies for the recognition of micro-credentials (with 8 more discussing)

Source: 2021, Micro-credentials and Bologna Key Commitments - State of play in the European Higher Education Area, MICROBOL.

DOMINANT FACTORS IN MICRO-CREDENTIAL OFFERS BY UNIVERSITY ALLIANCES

- Micro-Credentials are typically offered to students coming from institutions within the alliance – some alliances offer micro-credentials to the general public;
- **Recognition** of micro-credentials is nearly entirely within the alliances
- Many institutions see micro-credentials as **Erasmus-lite** an alternative or complement to mobility experiences, or as a mechanism to facilitate joint awards

FLEXIBILITY IS INCREASING – WITHIN LIMITS

Micro-Credentials used to:

- build learning pathways crossing multiple institutions
- experiment with new learning methodologies
- do some examples of

UNIVERSITY ALLIANCES HAVE NOT

- Significantly changed the structure of the student population
 - no upskilling at scale of adult learners;
 - no use of micro-credentials to increase access

WHAT IS THE STATUS OF MICRO-CREDENTIALS TODAY?

12

MOOCs with over
a million users in 2022

(none are from the EU)

SCALE IS HARDER TO ACHIEVE AT HIGHER LEVELS

3%

of the top 250 MOOCs are
at advanced level

**Is a Focus on Virtual
Mobility distracting from
scaling micro-credentials?**



HOW IS THE
LANDSCAPE
CHANGING?

Micro-Credentials for
Virtual Mobility

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WE HAVE MANY OF THE TOOLS TO UNDERSTAND THIS

- Digital Credentials are able to capture complex awarding processes
- The need for Digital Signatures is no longer up for discussion
- Trust Registries provide a link between accreditation processes and credentials/diplomas

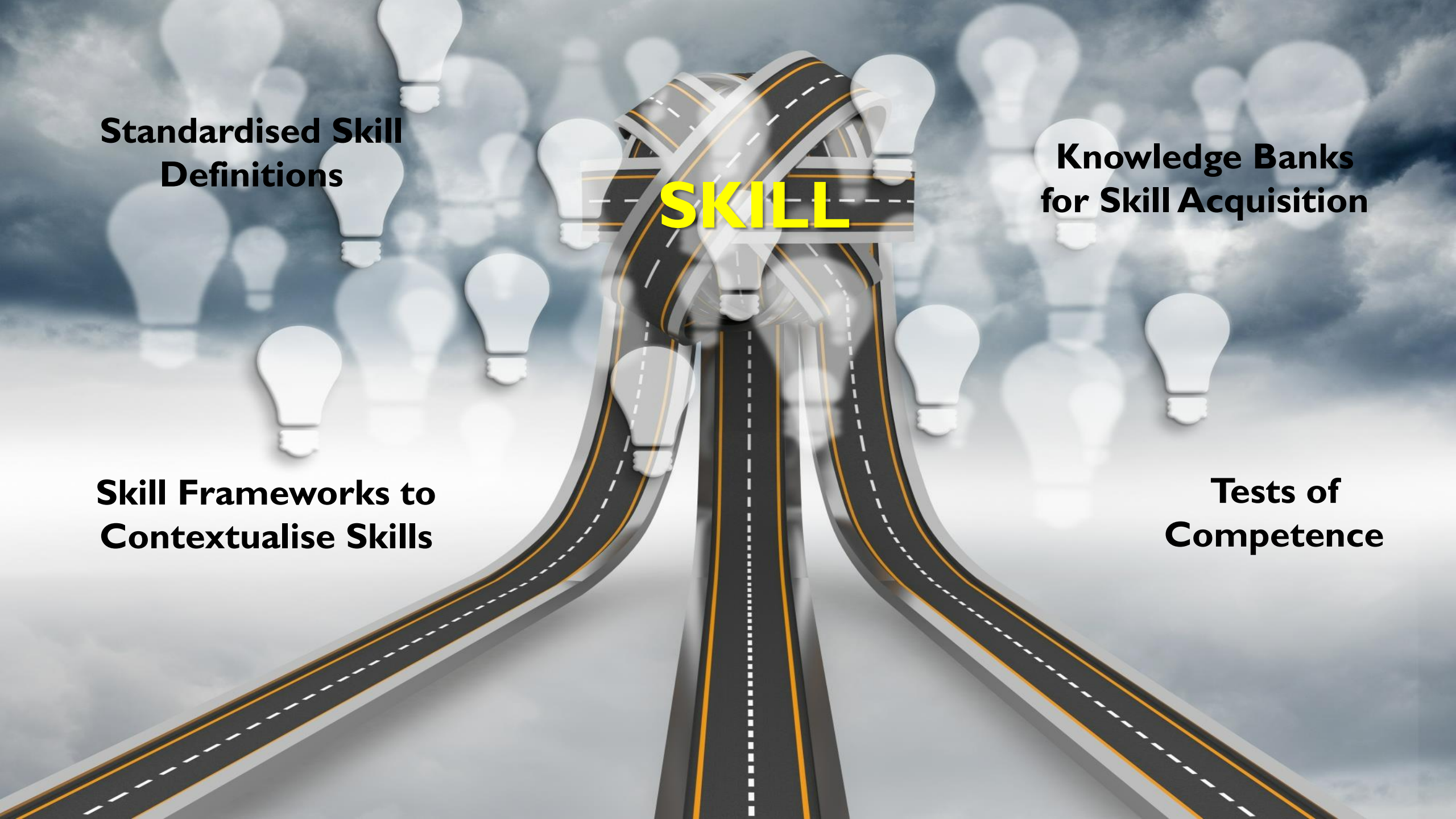
**Standardised Skill
Definitions**

SKILL

**Knowledge Banks
for Skill Acquisition**

**Skill Frameworks to
Contextualise Skills**

**Tests of
Competence**





IS THIS EASY TO UNDERSTAND?

LARGEST CHALLENGE

- Where to find trusted micro-credentials from European Universities / Alliances?

HOW IS THE
LANDSCAPE
CHANGING?

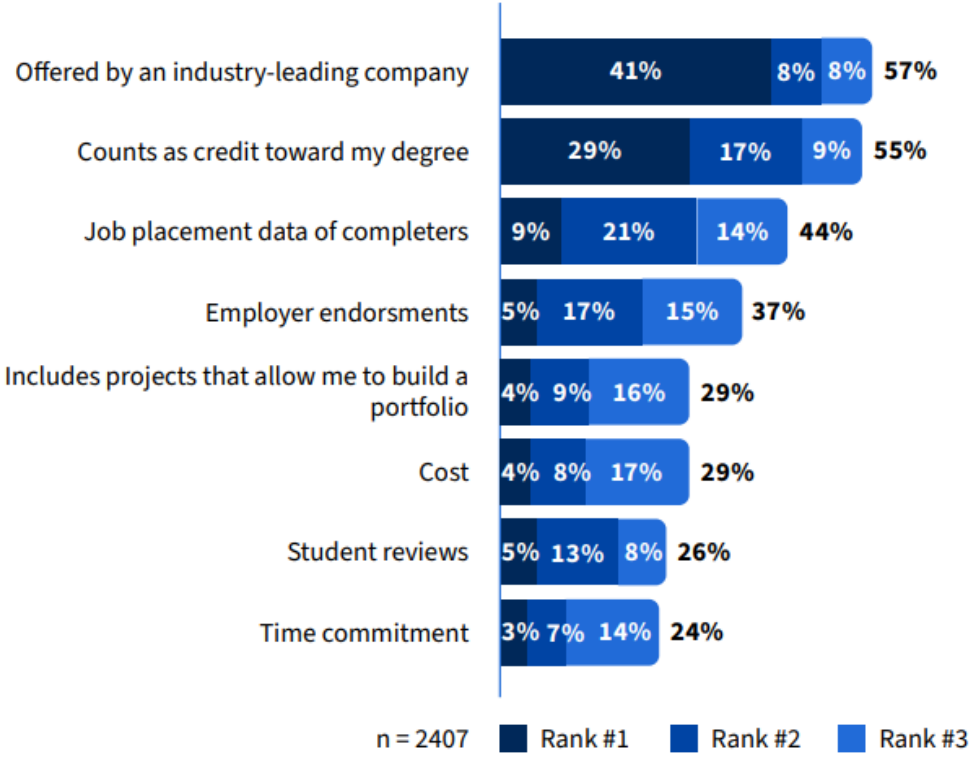
Micro-Credentials for
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Figure 3: Key factors in deciding to earn a Professional Certificate (students)

Question: What factors would you consider when deciding to earn a Professional Certificate? (Select the top 3 and rank them, with 1 being most important)



ARE WE
FOCUSED ON
THE RIGHT
THINGS?

WHAT IS THE STATUS OF MICRO-CREDENTIALS TODAY?

27 Million LinkedIn Learning Users

FUTURE OF MICRO- CREDENTIALS IN INDUSTRY

The screenshot displays the SAP Growth Portfolio interface for user Jada Baker, a Retail Sales Associate. The interface is organized into three main sections: Recommended for You, Aspirations, and Skills, followed by a Competencies section.

Recommended for You: This section features five skill cards. Each card includes the skill name, a brief recommendation based on user activity, and 'Add' and 'Skip' buttons.

Skill	Recommendation
Visual merchandising	Recommended based on your activities in SAP SuccessFactors.
Upselling and Cross Selling	Recommended based on your activities in SAP SuccessFactors.
Marketing awareness	Recommended based on your activities in Microsoft Teams.
Adaptability	Recommended based on your activities in Microsoft Teams.
Time management	Recommended based on your activities in SAP SuccessFactors.

Aspirations: This section displays three aspiration cards, each with a heart icon for favoriting.

Aspiration
Changing My Career Path
Becoming a Skill Expert
Becoming a High Potential

Skills: This section shows five skill cards with progress indicators and 'Edit Proficiency' links.

Skill	Progress	Current Level
Market Research	3/5	3 - Proficient
Creativity	4/5	4 - Expert
Product Development	3/5	3 - Proficient
Customer Service	4/5	4 - Expert
Culinary Science	5/5	5 - Expert

Competencies: This section displays five competency cards, each with a progress indicator and 'Edit Proficiency' link.

Competency	Progress	Current Level
Making a Strong Impression	3/5	3 - Proficient
Resolving Conflict	3/5	3 - Proficient
Making Convincing...	3/5	3 - Proficient
Prioritizing and Organizing...	3/5	3 - Proficient
Thinking Globally	3/5	3 - Proficient

FUTURE OF MICRO- CREDENTIALS IN INDUSTRY

SAP Development ▾ Search for actions or people

[Career Worksheet](#) Career Path Mentoring

Job Roles I'm Considering (4) **My Current Roles (1)**

Senior Developer ✕
🌡️ **40%**
Ready
ⓘ ★ 📄+


Sales ✕
🌡️ **22%**
Ready
ⓘ ★ 📄+


Executive Management ✕
🌡️ **17%**
Ready
ⓘ ★ 📄+

Planning ✕
🌡️ **13%**
Ready
ⓘ ★ 📄+

Attributes for Senior Dev... (4) Role Readiness: Evaluate your readiness

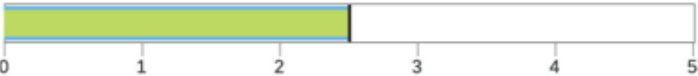
You need to work on 2 attributes

> **Accounting skills** ⓘ
Skill

0 1 2 3 4 5

> **Accepting Direction** ⓘ
Competency

0 1 2 3 4 5

2 target roles share this competency

You have met 2 attributes 🟢

> **API Development** ⓘ
Skill

0 1 2 3 4 5

Last updated on 07/27/2023 from Growth Portfolio



SOME CONCLUSIONS



SCENARIO A



Adding variety and lower costs within the boundaries of an outdated model of massified education

SCENARIO B



**Creating a
completely new
paradigm for
personalised
learning**

HOW ARE MICRO-CREDENTIALS LIKE ELECTRIC CARS?

proven concept
proven technology
social imperative
public demand
legacy and new providers
easy to get
enable new types of mobility



HOW ARE MICRO-CREDENTIALS LIKE ELECTRIC CARS?

not accepted everywhere
not fully trusted
are not interoperable
face scaling issues
compete with legacy systems



PERSONALISING

INDIVIDUAL MICRO-
CREDENTIALS FOR DIFFERENT
USERS IS THE NEW
TECHNOLOGICAL FRONTIER

SCALING

A EUROPEAN MODEL OF
MICRO-CREDENTIALS IS THE
LARGEST CHALLENGE FOR
UNIVERSITY ALLIANCES



TRUSTING

MICRO-CREDENTIALS VIA
AUTOMATIC RECOGNITION
IS OVERDUE

ANALYSING

PEOPLE'S LIFE-HISTORY TO
POWER RECOMMENDATIONS
IS THE FUTURE OF
PERSONALISED LEARNING

DOCUMENTING

ACHIEVEMENT FOR EVERY
CITIZEN WILL BE
FOUNDATIONAL FOR SOCIAL
MOBILITY

5

THANK YOU
FOR YOUR ATTENTION



Broader EU Policy context of micro-credentials

E-sealing micro-credentials by ECIU University

*Koen Nomden, European Commission
DG EMPL.B2*

European Year of Skills 2023

To further promote a mindset of reskilling and upskilling



Investment

Increased, more effective and inclusive investment



Skills relevance

Strengthening skills relevance by close cooperation



Matching aspirations

Matching people's aspirations and skills-set with labour market opportunities



Attracting third country talent

Attracting people from third countries with the skills needed



Key labour market challenges



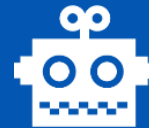
Geopolitics: A skilled workforce is key to the EU's competitiveness and capacity for growth and innovation



Green: The green transition will create 1-2.5 million additional jobs by 2030



The solution starts at home: but work to upskill, reskill and activate the domestic workforce will not alone be enough



Digital: still 11 million short of the EU target of employing 20 million ICT professionals by 2030



Demographic changes: Europe is an ageing society



Care sector growing needs: from 17.4 million workers in 2008 to around 22 million workers in 2022

Some figures on skills shortages



42 occupations
were classified as having
shortages in 2023



77% of
companies
struggled to
find employees
with the required
skills in 2019



adult learning
participation rate
remains **low**,
around 37%



over 90% of jobs require
digital skills, however **54%**
of the adult population
in Europe has
basic digital skills

EU targets by 2030 related to skills



**60% of the
adult
population to
participate in
training each
year**



**80% of
Europeans to
have at least
basic digital
skills**



**20 million ICT
specialists
(+ gender
convergence)**

Skills development in the EU

Lifelong upskilling and reskilling need to become the norm, ensuring

sustainable competitiveness

social fairness

strong resilience



What is the purpose of the EQF?

CHALLENGE

Education and training systems differ across countries. Qualifications are diverse and reflect national rules and traditions.

WIDER IMPACTS

- Employability, mobility and social integration of workers and learners
- Foster lifelong learning
- Modernising education and training systems



SPECIFIC OBJECTIVE

To improve the transparency, comparability and portability of people's qualifications, skills, credentials

Wider eco-system of the European Approach to micro-credentials

Acquire, update
and improve
skills

Quality and
transparency of
MC

Quality,
accessibility and
flexibility of the
learning offer

Personalised
learning and
career pathways

Inclusiveness,
access and
equal
opportunities

Skills
intelligence –
understanding
LM needs

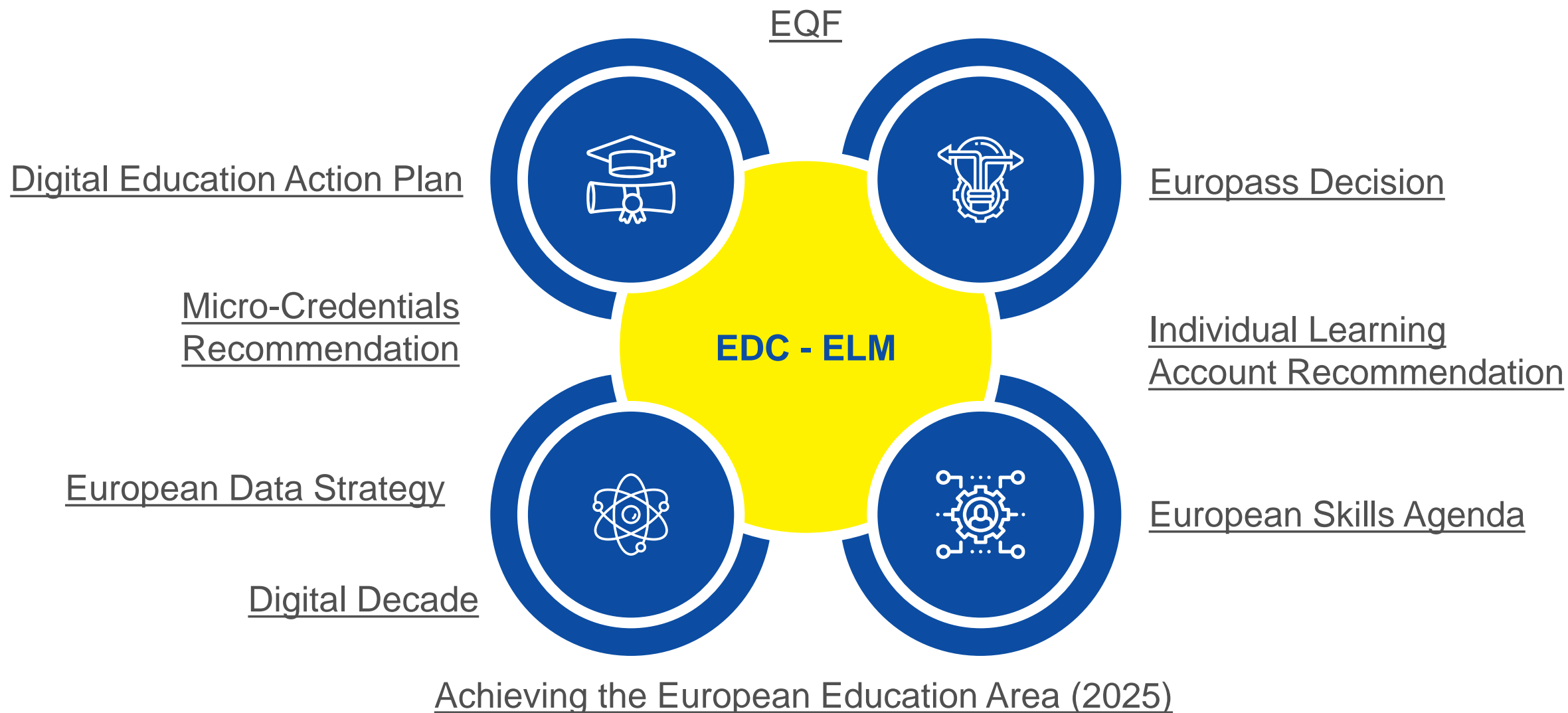
How could micro-credentials be used to address skill shortages?

Quick

Targeted

Flexible
settings

Recognition
as
motivation



Thank you.

CHALLENGING
CONVENTIONAL
THINKING



ECIU Micro-credentials

Padmasheela Kiiskilä , Researcher, ECIU University,
Tampere University

17.11.2023

<https://www.eciu.eu/about-eciu>



THE EUROPEAN CONSORTIUM OF INNOVATIVE UNIVERSITIES



SINCE 1997

Our collaboration is firmly based on expertise in innovative education, research, and knowledge exchange. We pride ourselves on being entrepreneurial, and on maintaining an innovative culture in our institutions, as well as providing a catalytic role for innovation in society.

We are ECIU, the European Consortium of Innovative Universities, a network of 13 universities united since 1997 by a common profile of shared beliefs, interests, and mutual trust.

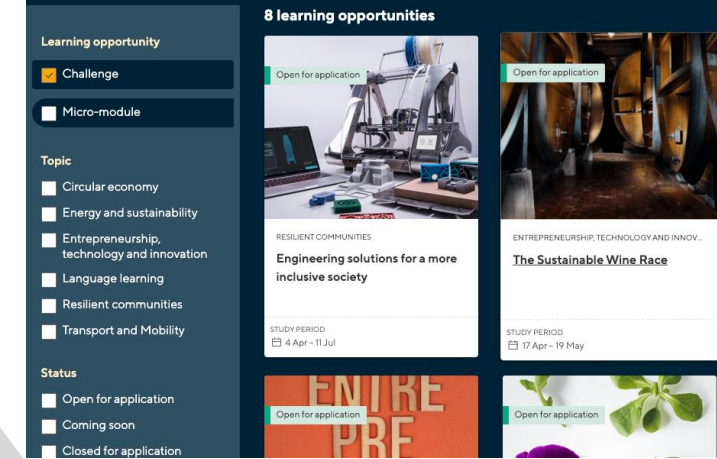
NOW

Together, we will create, test and evaluate a whole new educational pedagogy. This will help to focus all the university activities from education, research, administration and support through to innovation and valorisation.

The ECIU University is an EU-funded European University that will create a completely new educational model on a European scale. The ECIU University gathers together learners, teachers, and researchers to cooperate with cities and businesses and solve real-life challenges.



Browse learning opportunities



Broad range of learning Offerings as micro-credentials

- Current offers include
 - Challenges
 - May have ECTS
 - Hackathons and workshops that don't carry ECTS
 - Micro-modules
 - Include learning offerings from partners
 - Co-created by partners for ECIU
 - Micro 1-3 ECTS, standard up to 8ECTS
 - Online or hybrid setting
 - Instruction in English



ENERGY AND SUSTAINABILITY

**709A06 Strategic Planning -
Regions and EU**



<https://engage.eciu.eu/browse>

Micro-modules

*"A **micro-module** is a short learning experience that formally assessed and supports learners to fill their knowledge gaps and boost their capabilities in order to successfully engage in ECIU University challenge-based activities."*

Characteristics (2021-2022):

- Provided by an accredited institution or program (currently via ECIU network)
- Preferably **1-3 ECTS** (or unbundled from a larger module)
- Is preferably master's level, but can be also bachelor's level
- Priority for **online** provision, offline possible
- Provided in **English**



Intercultural Competences:
Guiding practical insights
through Citizen Science
(ICCS)

Check for application

MORE INFO

2 ECTS



☒ Challenge

☐ Micro-module

Topic

☐ Circular economy
 ☐ Energy and sustainability
 ☐ Entrepreneurship, technology and innovation
 ☐ Language learning
 ☐ Resilient communities
 ☐ Transport and Mobility


Status

☐ Open for application
 ☐ Coming soon
 ☐ Closed for application
 ☐ Finished

Study format

☐ Online
 ☐ Hybrid
 ☐ Campus

University

Choose universities
 

Open for application



RESILIENT COMMUNITIES

Engineering solutions for a more inclusive society

STUDY PERIOD
 4 Apr – 11 Jul

Open for application

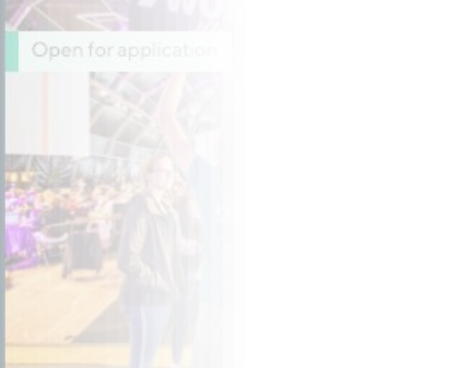


ENTREPRENEURSHIP, TECHNOLOGY AND INNOV...

The Sustainable Wine Race

STUDY PERIOD
 17 Apr – 19 May

Open for application



RESILIENT COMMUNITIES

Create Tomorrow

STUDY PERIOD
 1 May – 4 May

Challenges

- SDG themes
- Collaboration with
 - Industry
 - Cities
- ECTS based
- May have short non-formal opportunities (No ECTS)

Open for application

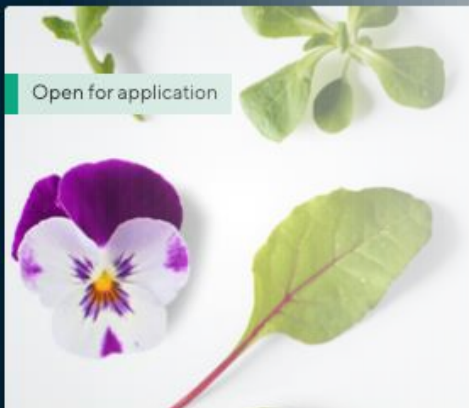


ENTREPRENEURSHIP, TECHNOLOGY AND INNOV...

Innovative Entrepreneurship

STUDY PERIOD
 27 Mar – 19 May

Open for application

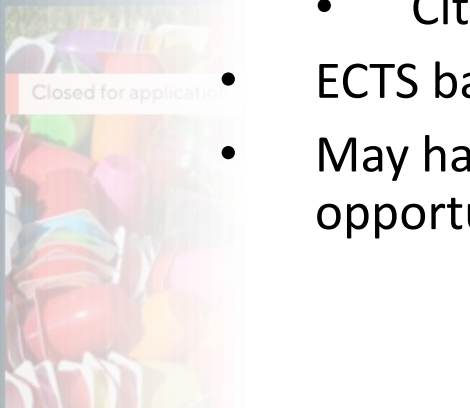


ENERGY AND SUSTAINABILITY

The Flowers Gourmet Hackathon

STUDY PERIOD
 17 Apr – 14 May

Closed for application



CIRCULAR ECONOMY

School education, consumption and

STUDY PERIOD
 6 Mar – 31 May

Micro-credentials in ECIU University

A record of the learning outcomes that a learner has acquired following a small volume of learning which have been assessed against transparent and clearly defined criteria

- EU commission



Learning Experience

Digital Credential



European standard elements to describe a micro-credential (Annex I)

Mandatory elements:	Identification of the learner
	Title of the micro-credential
	Country(ies)/Region(s) of the issuer
	Awarding body(ies)
	Date of issuing
	Learning outcomes
	Notional workload needed to achieve the learning outcomes (in ECTS credits, where possible)
	Level (and cycle, if applicable) of the learning experience leading to the micro-credential (EQF, QF-EHEA), if applicable
	Type of assessment
	Form of participation in the learning activity
	Type of quality assurance used to underpin the micro-credential
Optional elements, where relevant (non-exhaustive list)	Prerequisites needed to enrol in the learning activity
	Supervision and identity verification during assessment (unsupervised with no identity verification, supervised with no identity verification, supervised online, or onsite with identity verification)
	Grade achieved
	Integration/stackability options (stand-alone, independent micro-credential/integrated, stackable towards another credential)
	Further information








Introduction to Artificial Intelligence

Valid from: 11/06/2023 | Type: Generic | Credential id: urn:credential:c11943bf-1279-484f-a4e3-93fc876ed1d6

[Home](#) | [Export](#) | [Upload another credential](#)

[Share](#)

English

-  Padmasheela Kiiskilä
-  Stichting European Consortium of Innovative Universities
-  Introduction to Artificial Intelligence
-  Create a chatbot using Scratch
-  Use image classification tools to identify different objects in images
-  Recognition for credit
-  Overall assessment

ECIU

Introduction to Artificial Intelligence

certifies that

Padmasheela Kiiskilä

Warning! This is a sealed digital credential.
Do not tamper with the digital signature code!

« < 1 / 1 > »

Authentication and Verification Check



FORMAT

This credential is technically valid.



SEAL

The credential is Sealed by Stichting European Consortium of Innovative Universities. This credential has not been tampered with since issue.



REVOCATION

Function under development. Contact the awarding body for information about this credential's revocation status.



ACCREDITATION

The credential does not contain reference to an accreditation record related to the awarding body.



VALIDITY

The credential is still valid.



VERIFIED

European Standards

European Learning Model

European Digital Credential

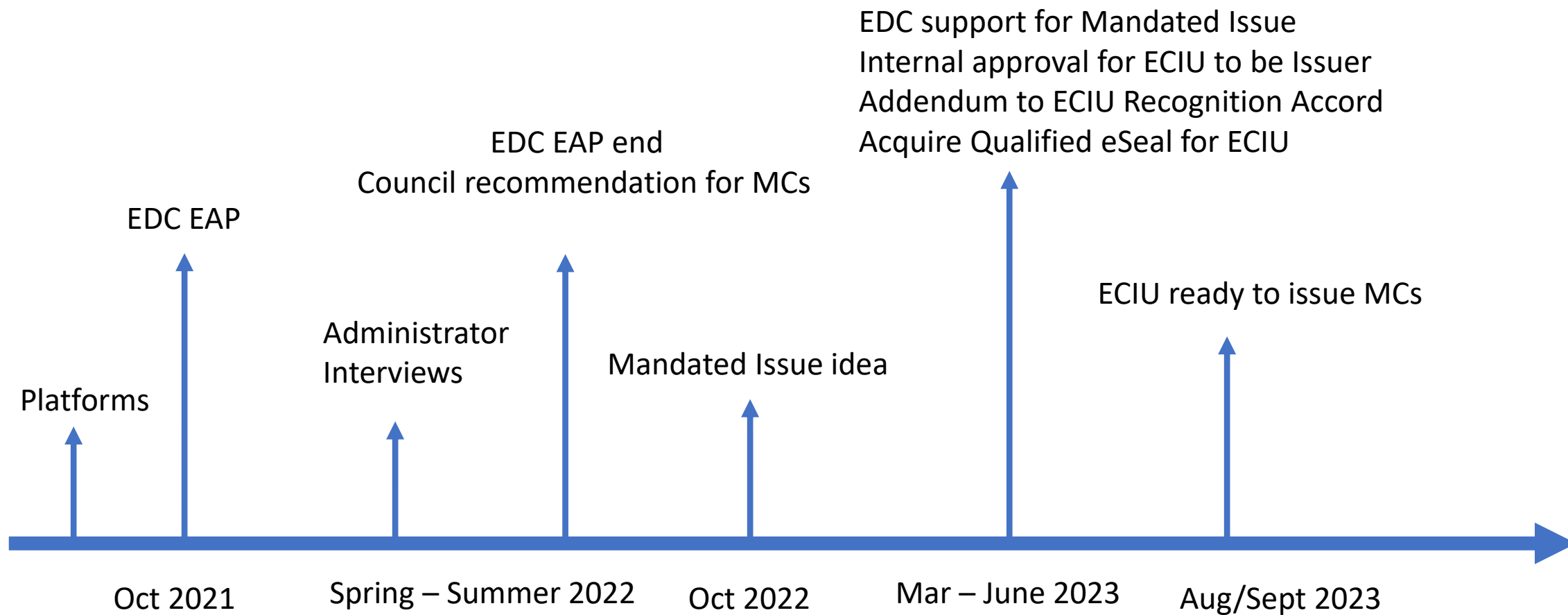
W3C VC datamodel

EQF levels

Qualified eSeal

DEQAR for
accreditation

ESCO framework



ECIU Micro-credential journey

Mandated issue

The European Digital Credentials for Learning Infrastructure allows credential issuers to delegate the sealing role to third parties. **Signing a digital credential on behalf of another organisation is called mandated issue, and this is familiar practice in cases where, for example, a national body such as a Ministry of Education or a parent organisation of an awarding body, seals a credential on behalf of the institution that officially issues it.** In other cases, it may be a technology provider that, from within its system, formally seals credentials issued by its education and training provider client.

eSeal

If an institution wants to issue legally admissible digital credentials that pass the EDC Seal verification check, **it must acquire an advanced or qualified electronic seal**, and once a credential is sealed with that e-Seal, it cannot be tampered with without detection – the slightest change in the file data will result in the e-Seal verification check failure

Source: <https://europa.eu/europass/en/stakeholders/european-digital-credentials/stakeholder-information-about-european-digital-credentials>

Qualified eSeal

- uniquely linked to the creator of the seal
- capable of identifying the creator of the seal
- created using electronic seal creation data that the creator of the seal can, with a high level of confidence under its control, use for electronic seal creation, and
- linked to the data to which it relates in such a way that any subsequent change in the data is detectable
- created by a qualified seal creation device (QSCD)
- and is based on a qualified certificate for electronic seals


<https://ec.europa.eu/digital-building-blocks/wikis/display/ESIGKB/What+are+the+levels+simple+--+advanced+and+qualified+of+electronic+seals>

 Padmasheela Kiiskilä


 **Stichting European Consortium
of Innovative Universities**

 Introduction to Artificial Intelligence

 Create a chatbot using Scratch

 Use image classification tools to
identify different objects in images

 Recognition for credit

 Overall assessment

Signed by

**Stichting European Consortium of
Innovative Universities**



Also known as

Stichting European Consortium of Innovative Universities

Seal validation information



The credential is Sealed. This credential has not been tampered with since it was issued by Stichting European Consortium of Innovative UniversitiesKLASS3-SK 2016 AIA OCSP RESPONDER 202311 ;KLASS3-SK 2016 AIA OCSP RESPONDER 202307 ;root-ca ;KLASS3-SK 2016 ;good-tsa ;Stichting European Consortium of Innovative Universities ;, on 7/6/23, 4:11 PM.

Evidence statement

Every claim inside this credential is to be construed as having been made by the indicated awarding body, who maintains sole responsibility for said claim. By applying its electronic seal, the signing organisation certifies the correctness of origin of each claim, as having been made by the indicated awarding body.

 **Identifiers**

Legal ID

08164880

EIDAS Identifier

NTRNL-08164880



Johan Peterson



Stichting European Consortium of
Innovative Universities



ECIU eSealed Micro-
credentials



ECIU eSealed Micro-credentials

DUBLIN CITY UNIVERSITY (DCU)

Show less ^

Legal ID

999892588

Awarding Date

01/12/2023

Description

Show less ^

Webinar - Participants in this webinar will learn about how the ECIU University is rolling out centralised, tamper-proof micro-credentials to its learners. These micro-credentials are issued and eSealed by ECIU University using the European Digital Credentials platform, ECIU University and other credentialing experts will explain the ECIU user journey as an early adopter of e-sealed micro-credentials.

^ Learning Outcomes

Understanding micro-credentials

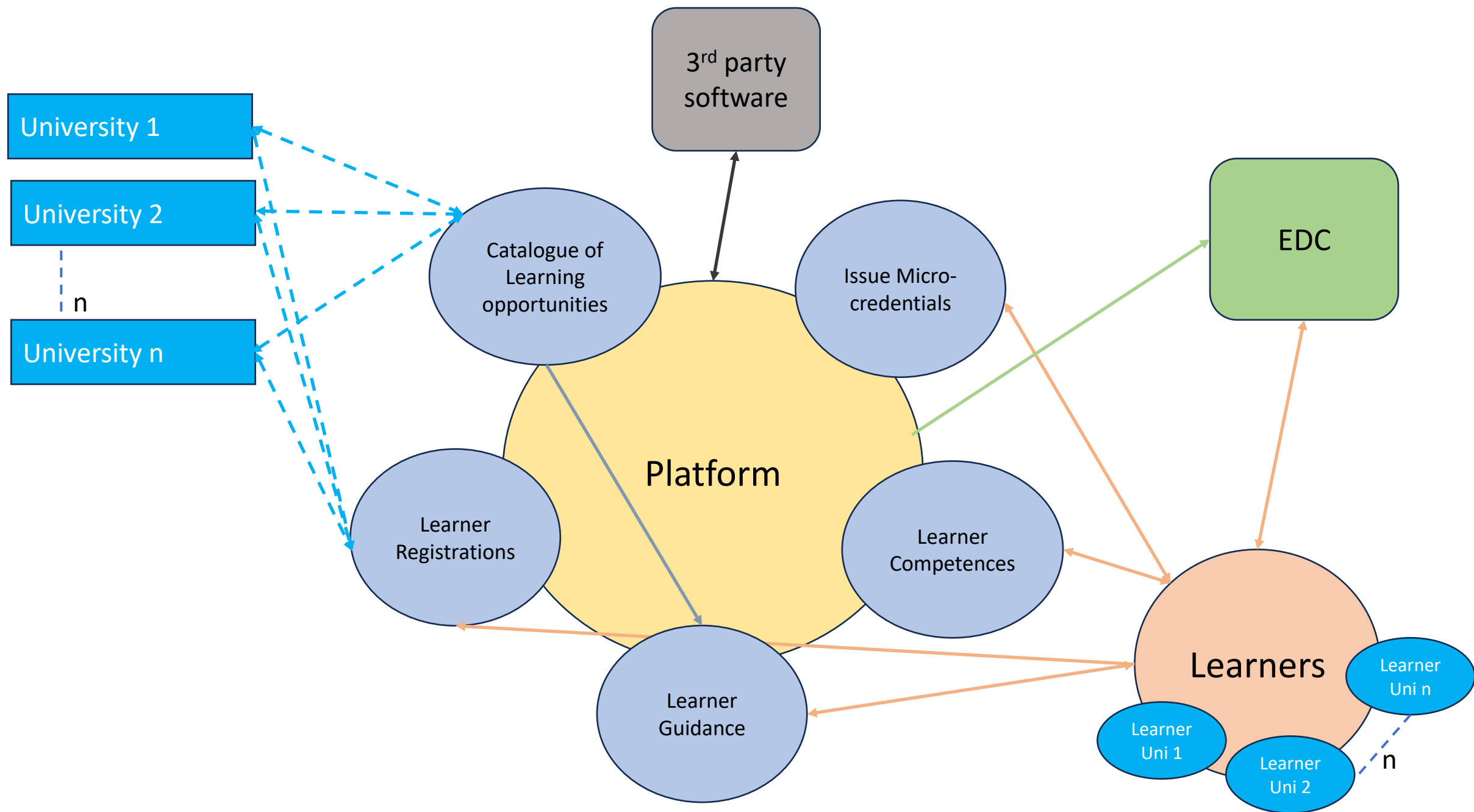
Related ESCO Skills

digital competencies , Types of digital
badges , demonstrate enthusiasm

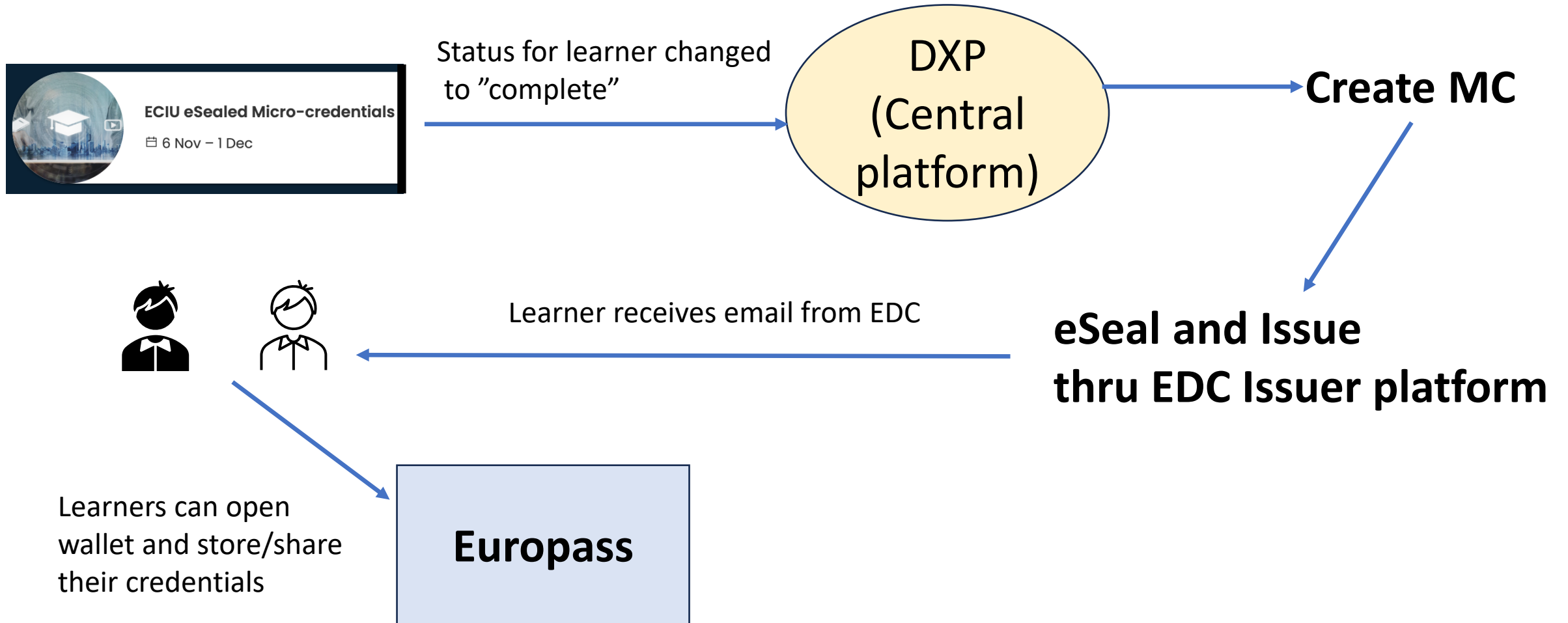
Related Skills

Show less ^

^ Achievement information



Journey from registering to ELO till MC issued



PAVING THE ROAD FOR THE MICRO-CREDENTIALS MOVEMENT

ECIU UNIVERSITY WHITE PAPER ON MICRO-CREDENTIALS

Access our 1st Micro-Credential white paper:

<https://www.eciu.org/news/micro-learning-varies-from-online-courses-to-study-packages>

Access our 2nd Micro-Credential white paper:

<https://www.eciu.org/news/paving-the-road-for-the-micro-credentials-movement>

Access our 3rd Micro-Credential white paper:

<https://www.eciu.org/news/presentation-of-the-third-eciu-university-micro-credentials-paper-a-vision-for-european-learners-values-and-priorities>

DEFINITIONS AND
STANDARDS

QUALITY
ASSURANCE

CREDITS AND
RECOGNITION

STORAGE, PORTABILITY
AND PLATFORMS

SUCCESSFUL
UPTAKE

Kiiskilä, P., Hanafy, A., & Pirkkalainen, H. (2022). Features of Micro-credential Platforms in Higher Education. In CSEDU (1) (pp. 81–91).

Features of Micro-Credential platforms in Higher Education

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Kiiskilä, P., Kukkonen, A., & Pirkkalainen, H. (2023). Are Micro-Credentials Valuable for Students? Perspective on Verifiable Digital Credentials. *SN Computer Science*, 4(4), 366.

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ORIGINAL RESEARCH



Are Micro-Credentials Valuable for Students? Perspective on Verifiable Digital Credentials

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HOW CAN EUROPEAN BLOCKCHAIN SERVICES INFRASTRUCTURE BE USED FOR MANAGING EDUCATIONAL DIGITAL CREDENTIALS?

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