Micro-GEAR

Co-funded by the European Union

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unesco Chair

Case studies from Spain

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Outline

1. **Current Legislation**
2. Quality assurance
3. Technological support
4. Two use cases at UC3M

2021

Real Decreto 822/2021, de 28 de septiembre, por el que se establece la organización de las enseñanzas universitarias y del procedimiento de aseguramiento de su calidad.

Publicado en: «BOE» núm. 233, de 29/09/2021.
Entrada en vigor: 19/10/2021
Departamento: Ministerio de Universidades
Referencia: BOE-A-2021-15781
Permalink ELI: https://www.boe.es/eli/es/rd/2021/09/28/822/con

Seleccionar redacción: Última actualización publicada el 19/10/2022

PDF ePUB

Diccionario Panhispánico del Español Jurídico

Article 37. Lifelong Learning

8. Likewise, universities may provide their own courses of less than 15 ECTS that may or may not require a prior university degree, in the form of microcredentials or micromodules, which allow certifying learning results linked to short-term training activities. In no case may these teachings be confused with the degrees offered by the Intermediate or Higher Level Vocational Training centers.

https://www.boe.es/buscar/act.php?id=BOE-A-2021-15781

2023

Organic Law 2/2023, of March 22, of the University System.

Published in:	«BOE» number. 70, dated 03/23/2023.
Entry into force:	04/12/2023
Department:	head of state
Reference:	BOE-A-2023-7500
Permalink ELI:	https://www.boe.es/eli/es/lo/2023/03/22/2/con

Select wording: Initial text published on 03/23/2023

PDF ePUB

Pan-Hispanic Dictionary of Legal Spanish

Article 7. University degrees.

5. Lifelong learning may be developed through different teaching modalities, including microcredentials, micromodules or other short-term programs.

https://www.boe.es/buscar/act.php?lang=en&id=BOE-A-2023-7500

MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

- 50M€ and 41 actions aimed at developing micro-credentials in Spain
- To be developed between 2023-2026
- Different levels of implementation depending on the Autonomous Communities
- Single platform with the national offer of micro-credentials
- Promotion of collaborative projects among several universities to co-produce micro-credentials

https://www.universidades.gob.es/plan-microcreds/

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Short definition*

"A micro-credential is (the record of the results of) a short learning experience, the reliability of which is supported by transparent quality assurance procedures."

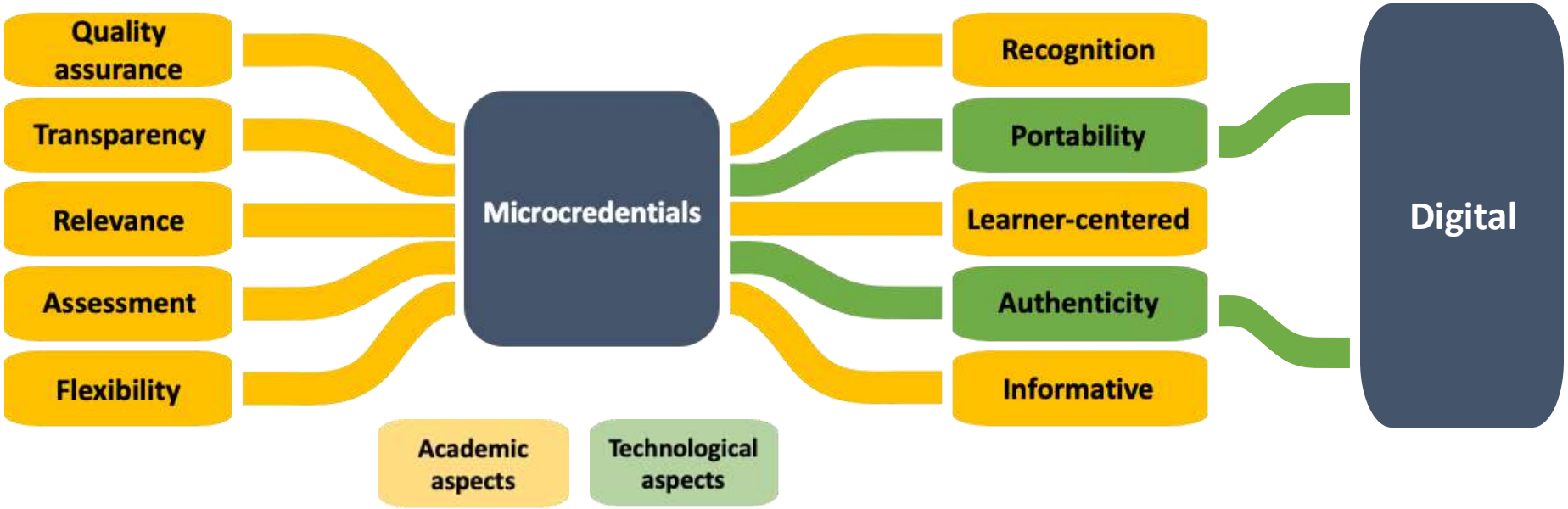
Una propuesta de definición resumida

Una microcredencial es (el registro de los resultados de) una experiencia de aprendizaje breve, cuya fiabilidad está respaldada por procedimientos transparentes de aseguramiento de la calidad.

** "Aligned" with the EU definition*

https://www.aneca.es/documents/20123/49576/MICROCREDENCIALES_Informe_V3.pdf/db424827-b464-d41d-ae09-717eb95e5742?t=1660907214565

Detailed definition*



** Aligned with the EU definition*

https://education.ec.europa.eu/education-levels/higher-education/micro-credentials

Internal quality

- Based on the **effectiveness of providers' internal quality assurance procedures,** including:
  - Standards established by the EU
  - Other established principles or standards
  - Quality of the learning experience
  - Feedback from learners on the learning experience
  - Feedback from stakeholders and others on the learning experience

https://www.aneca.es/documents/20123/49576/MICROCREDENCIALES_Informe_V3.pdf/db424827-b464-d41d-ae09-717eb95e5742?t=1660907214565

External quality

- Based primarily on the **assessment of providers' internal quality assurance systems**:
  - Not on the external QA of each micro-credential

https://www.aneca.es/documents/20123/49576/MICROCREDENCIALES_Informe_V3.pdf/db424827-b464-d41d-ae09-717eb95e5742?t=1660907214565

Guidelines for Internal QA*

AUDIT certificate

- Applied to the **whole institution** of to **specific centers** within the institution
- Including bachelor's, master's and doctoral degrees, and, where appropriate, **lifelong learning and micro-credentials**

** Beyond microcredentials*

https://www.aneca.es/documents/20123/68562/Gu%C3%ADa-AUDIT-NIPO.pdf/a3facd4d-26f2-23be-9219-62db88e68ad2?t=1672840034589

Potential micro-credential providers

- Education and training institutions
- Research, development, and innovation institutions
- Public and private bodies
- Employers, companies and industries.
- Public employment services.
- National, regional and local authorities.
- Professional associations.
- Civil society organizations.
- Community centers.
- …

https://www.aneca.es/documents/20123/49576/MICROCREDENCIALES_Informe_V3.pdf/db424827-b464-d41d-ae09-717eb95e5742?t=1660907214565

Guidelines for the Design and Accreditation of Micro-credentials

RUE-PEP - University Network of post-graduate studies and continuing education

- Proposal of an extensive list of 24 elements to be considered when designing university micro-credentials (clustered in 3 categories)
  1. Identification of the micro-credential
  2. Description of the learning experience
  3. Assessment and certification

https://ruepep.org/wp-content/uploads/2024/03/Orientaciones-para-el-diseno-y-acreditacion-de-las-Microcredenciales-Universitarias.pdf

1. Identification	
Identification of Recipient	Name of the individual receiving the certification.
Supervision and Verification of Identity	Type of identity verification during the course and evaluation (e.g., unsupervised, supervised online/in-person with identity verification).
Name of the Micro-credential	Title or denomination of the university micro-credential.
Issuing University	The university or universities offering the micro-credential.
Entity for Learning Experience	If different from the issuing university, name of the organization or institution where the learning occurs.
2. Description of the Learning Experience	
Start and End Date	The beginning and completion dates of the educational activity.
Language	Language of instruction.
Admission Requirements	Prerequisites for access and criteria for admission (e.g., level of prior education or knowledge).
Learning Objectives	Clearly defined objectives based on the target audience and the purpose of the training.
Content Description	Detailed description of the educational content.
Mode of instruction	In-person, online, or hybrid.
Learning Outcomes	Expected learning outcomes and type of achievement (e.g., skills, knowledge, competencies).
Level of Experience	Qualification level as per frameworks like EQF and the Spanish MECU
Competency Frameworks	Competency frameworks used (e.g., ESCO, DIGCOMP, or others).
Learning Activities	Types of learning activities (theoretical and practical).
Workload (Theoretical)	Volume of theoretical work required to achieve the learning outcomes (in ECTS and hours, if applicable).
Workload (Practical)	Volume of practical work required to achieve the learning outcomes (in ECTS and hours, if applicable).
3. Assessment and Certification	
Assessment Methods	Type of assessments validating learning outcomes (e.g., skill application, video presentation, portfolio).
List of Trainers	Qualifications and professional experience of trainers.
Stackability Options	Possibility of integration with other micro-credentials (independent, integrated, stackable).
Outcome or Rights for the Student	Resulting credential, badge, program admission, or qualification earned.
Quality Assurance	Type of quality assurance or validation procedure used.
Certifying University	The legal name, mandatory legal identifier, and country/region of the university issuing the certification.
Date of Issue	Date on which the micro-credential is issued.

https://ruepep.org/wp-content/uploads/2024/03/Orientaciones-para-el-diseno-y-acreditacion-de-las-Microcredenciales-Universitarias.pdf

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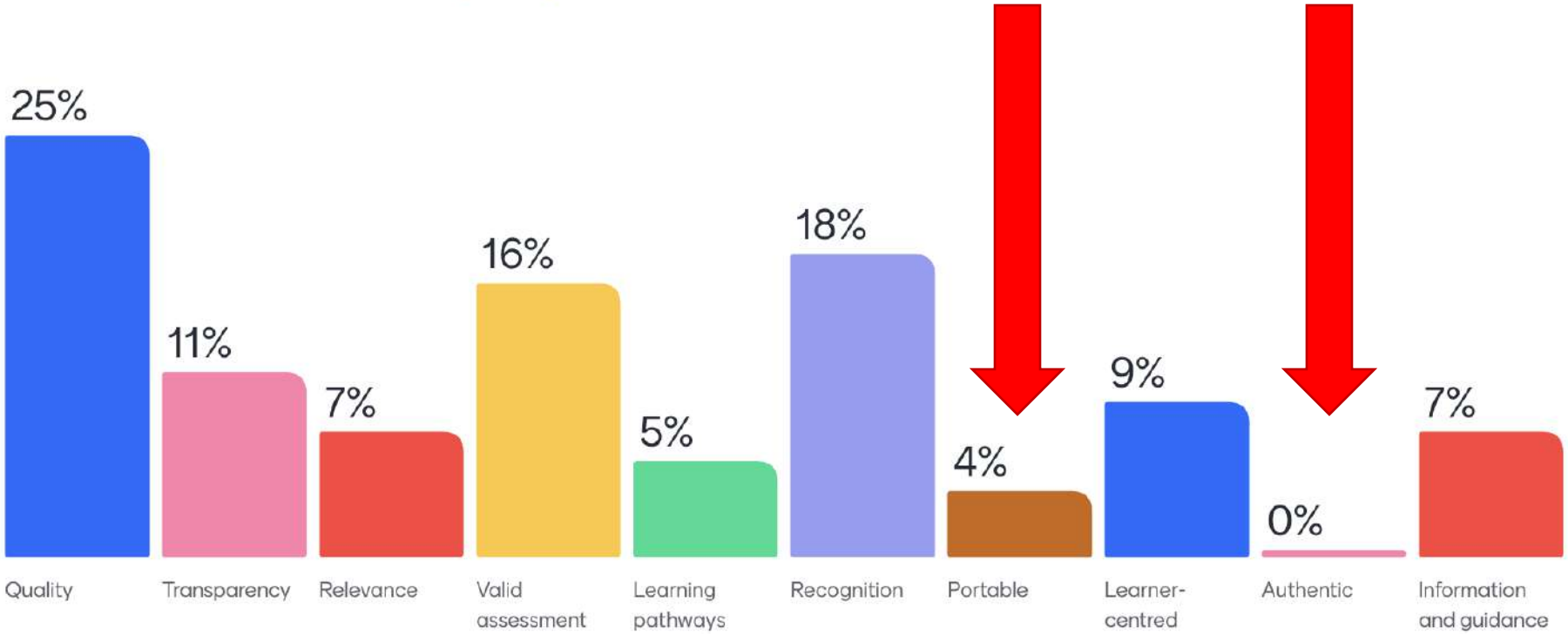
4. Two use cases at UC3M

Survey from this very morning!!

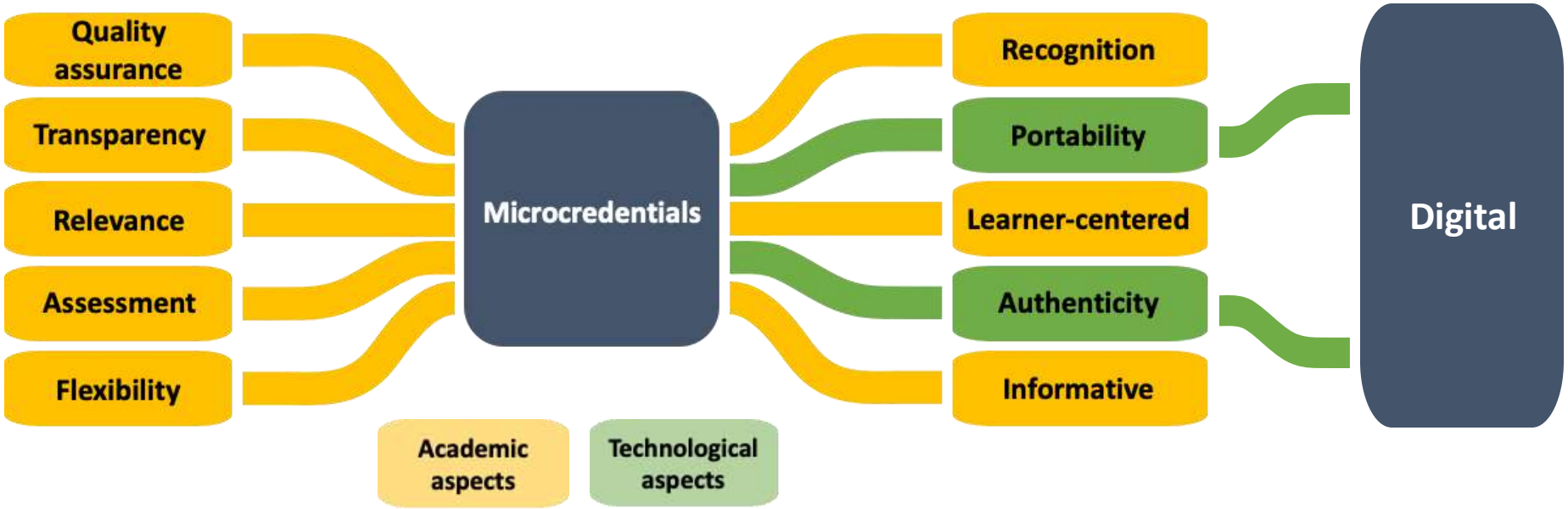
Mentimeter

Which principles of the Annex II for the design and issuance of MCs and systems **are well-developed** in your country? Select *max 4 principles*



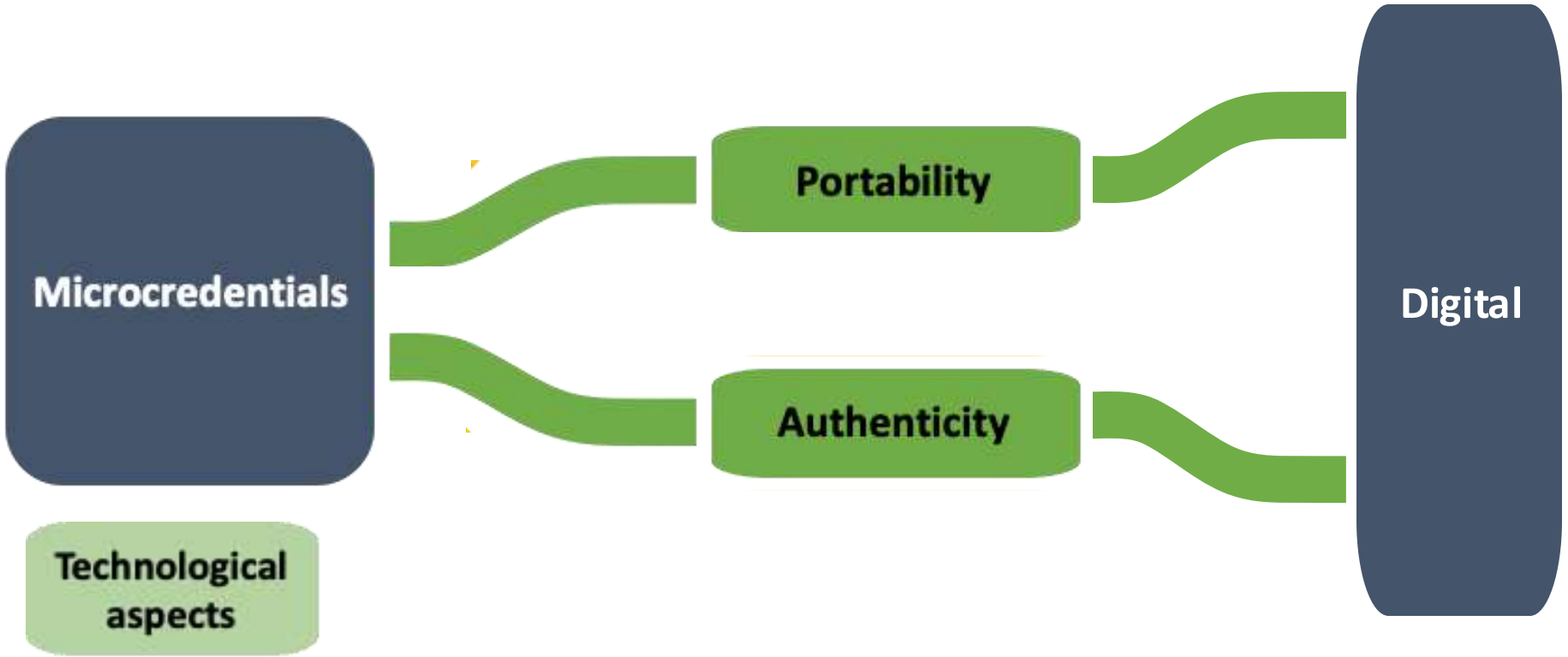
6 18

Detailed definition*



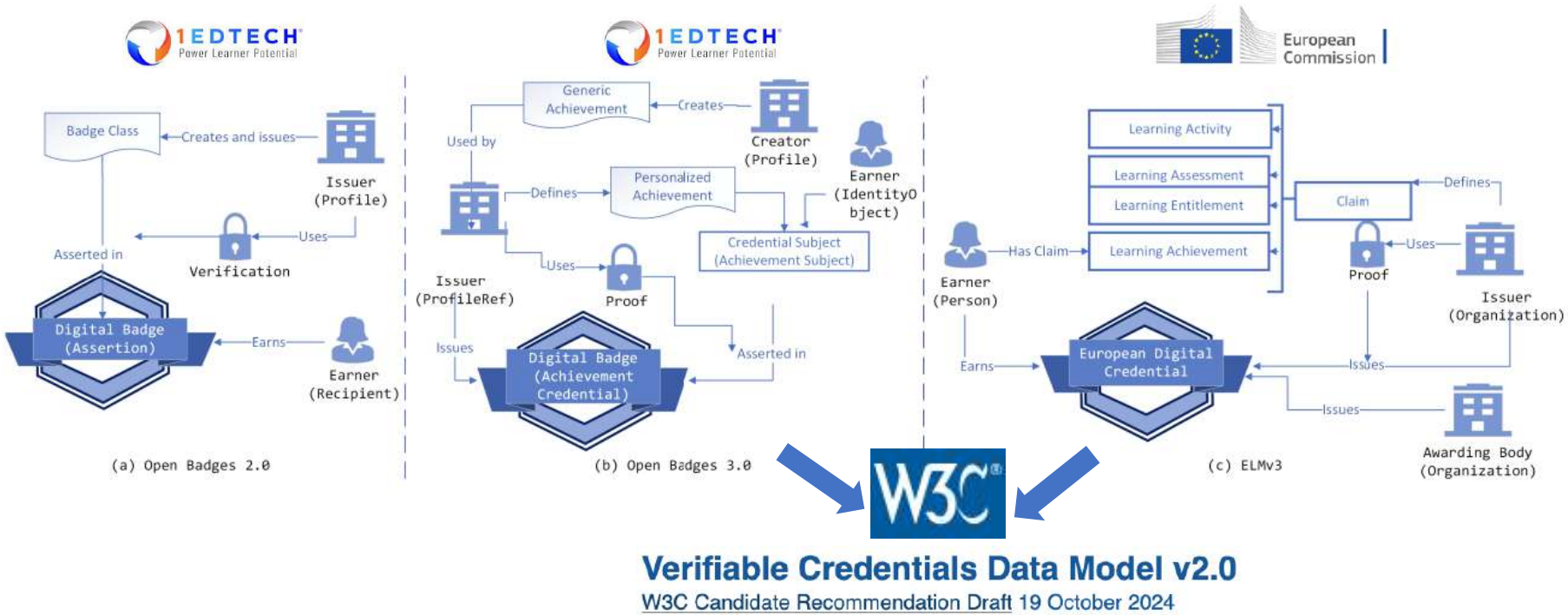
** Aligned with the EU definition*

https://education.ec.europa.eu/education-levels/higher-education/micro-credentials



https://education.ec.europa.eu/education-levels/higher-education/micro-credentials

Data model for Digital (Micro)-Credentials



Kemcha, R., Alario-Hoyos, C., & Delgado Kloos, C. (2024, October). Exploring Recognition in Digital Education through Open Badges and the European Learning Model. In *2024 DEMOcon* (pp. 1-6).

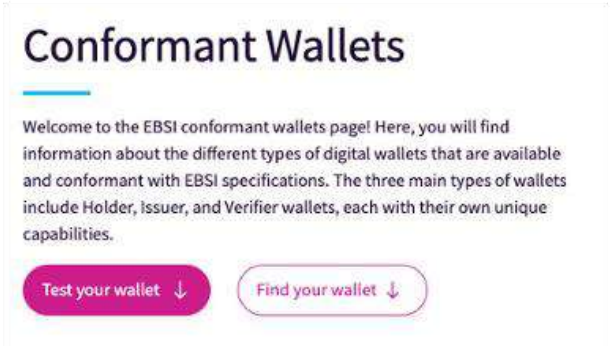
(Public) Infrastructure for Digital (Micro)-Credentials

Centralized

European Digital Credentials

Distributed

ebsi
European Blockchain



https://ec.europa.eu/digital-building-blocks/sites/display/EBSI/Conformant+wallets#find-your-wallet

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(Public) Infrastructure for Digital Credentials

Centralized

European Digital Credentials

Improvement of EU Public Technological Solutions in Spain

CertiDigital cD

2022-2024

GOBIERNO DE ESPAÑA

Plan de Recuperación, Transformación y Resiliencia

Financiado por la Unión Europea NextGenerationEU

https://certidigital.es

Distributed

ebsi European Blockchain

Conformant Wallets

Welcome to the EBSI conformant wallets page! Here, you will find information about the different types of digital wallets that are available and conformant with EBSI specifications. The three main types of wallets include Holder, Issuer, and Verifier wallets, each with their own unique capabilities.

Test your wallet ↓ Find your wallet ↓

https://ec.europa.eu/digital-building-blocks/sites/display/EBSI/Conformant+wallets#find-your-wallet

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4. **Two case studies at UC3M**
   a) **Case Study I (2022): Diploma on Sustain. Applied to the Fashion Industry**
   b) Case Study II (2023): University Digital Backpack

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European Digital Credentials

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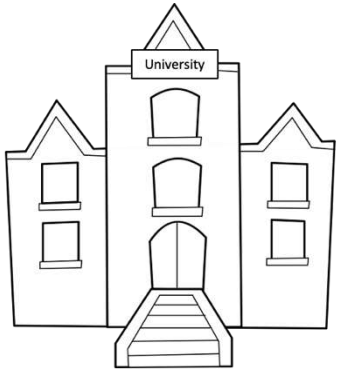
UC3M School of Continuing Education

- Diploma
- Blended delivery mode
- 120 hours (3 months)
- Course 2020/2021
- 9 students
- Data model and Infrastructure: **ELM and EDC**

1. Issuance



2. Storage in *wallet*

3. Visualization and validation

Issuance

Prepare

1

eSeal protected by PIN (FNMT)

+ Smart card reader (or local installation on PC)

+ Some software (NexU – Java Exec. File)

NexU : Browser Signing

Digital Trust and Interoperability Technology leader

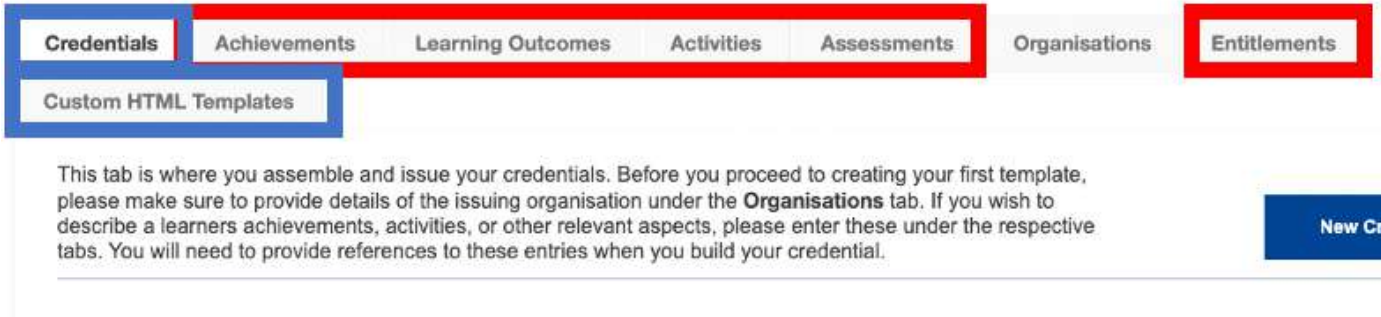
Issuance

Build 2

Online credential builder

+ ELM

+ ESCO / EQF



Issuance

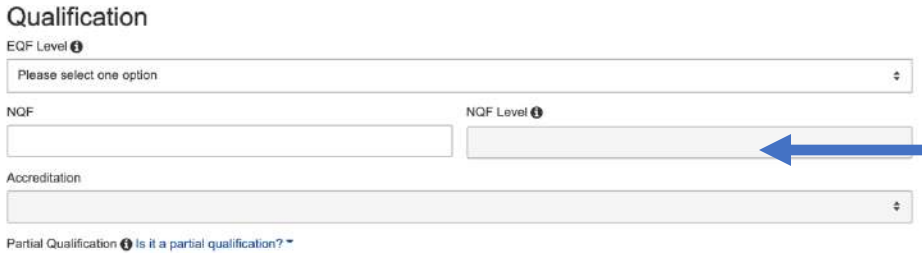
Build 2

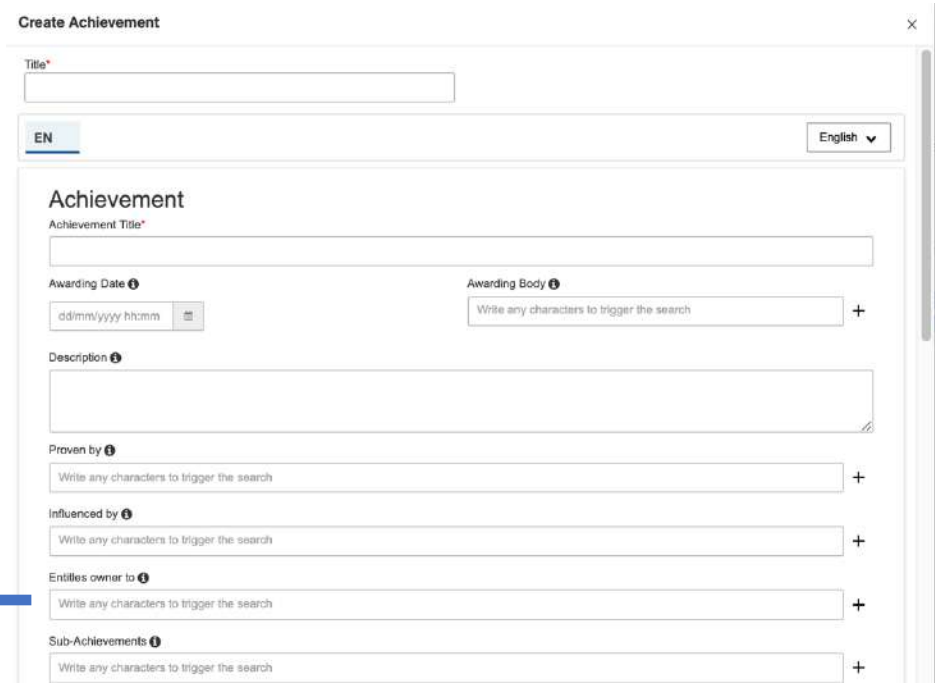
Online cred. builder

+ ELM

+ ESCO / **EQF**

(Learning)
Achievement





Issuance

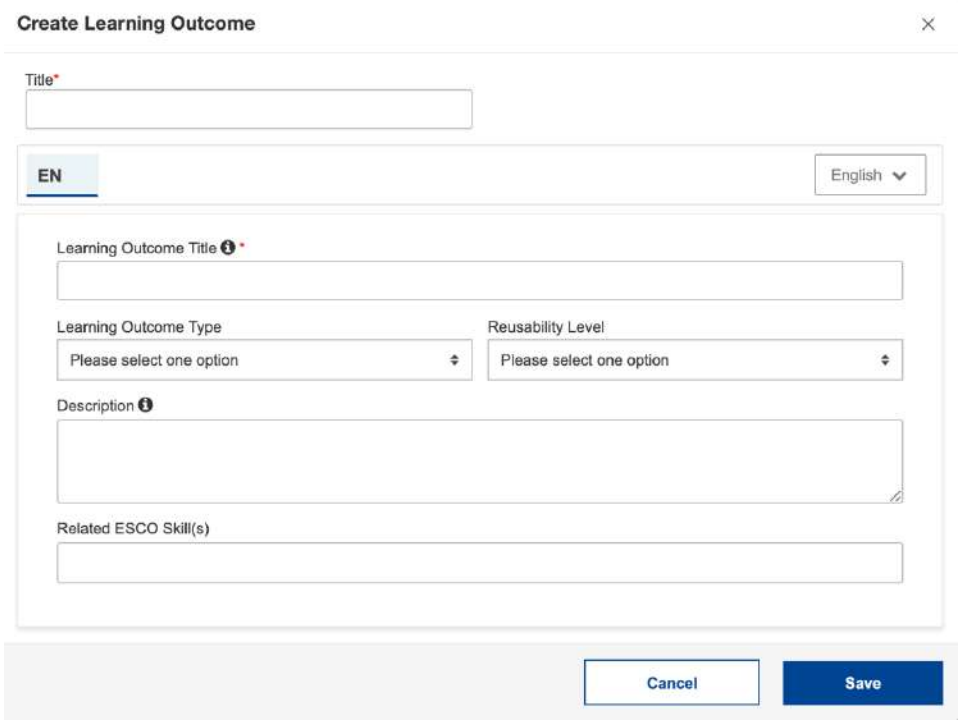
Build **Online cred. builder**

2

+ ELM

+ ESCO / EQF

(Learning)
Outcomes



Issuance

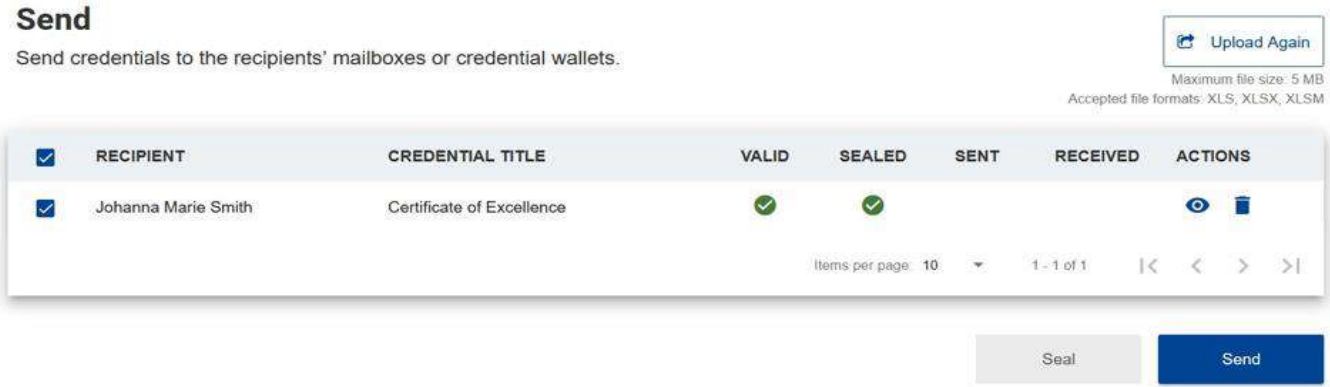
Upload

3

Data validation

+ Application of the e-seal

+ Automatically sent to learners' email and wallet (if *eulogin*)



Lessons learned: *issuance*

01 to adapt the *internal regulation of the educational institution*

02 *to define the process and the key personnel* involved for issuing digital credentials

03 *to work closely with the academic coordinator of the short program*

04 *to take examples from several use cases* when building digital credentials

05 *to align with existing frameworks*, such as ESCO or EQF

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VOGUE

European Digital Credentials

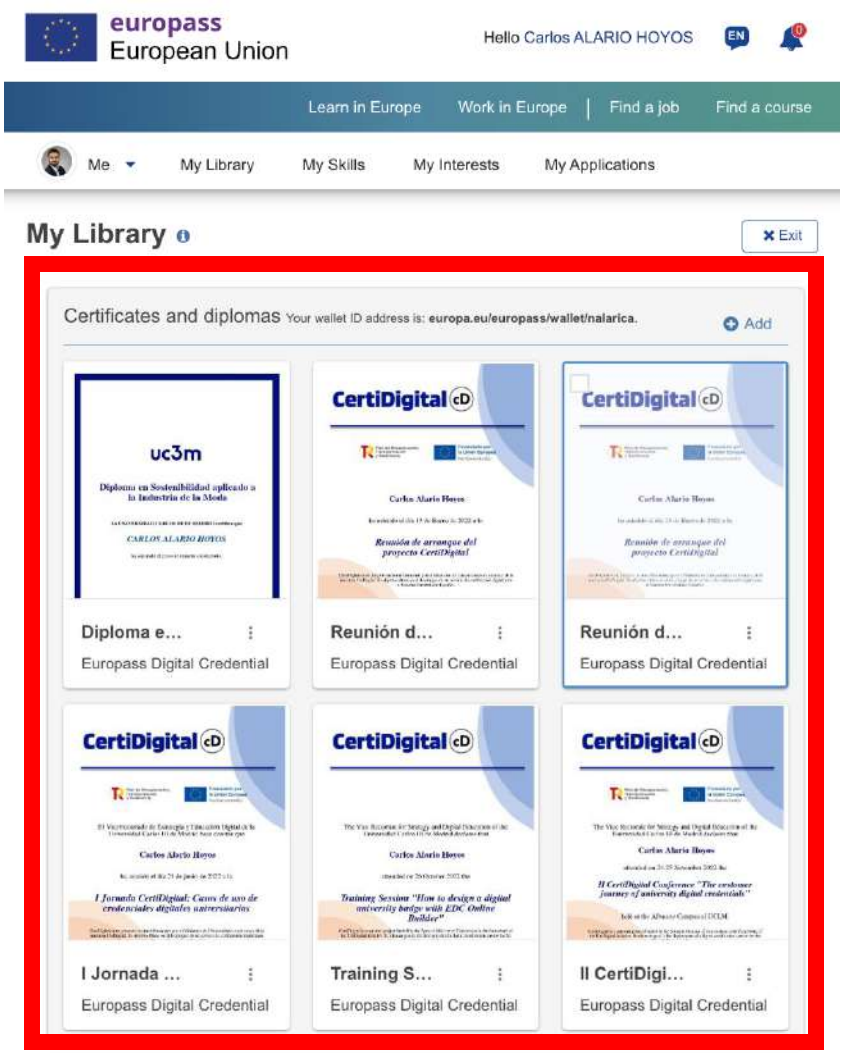
Storage in wallet

List of digital credentials in Europass

+ CVs (with attached credentials)

+ Job offers

+ Learning opportunities



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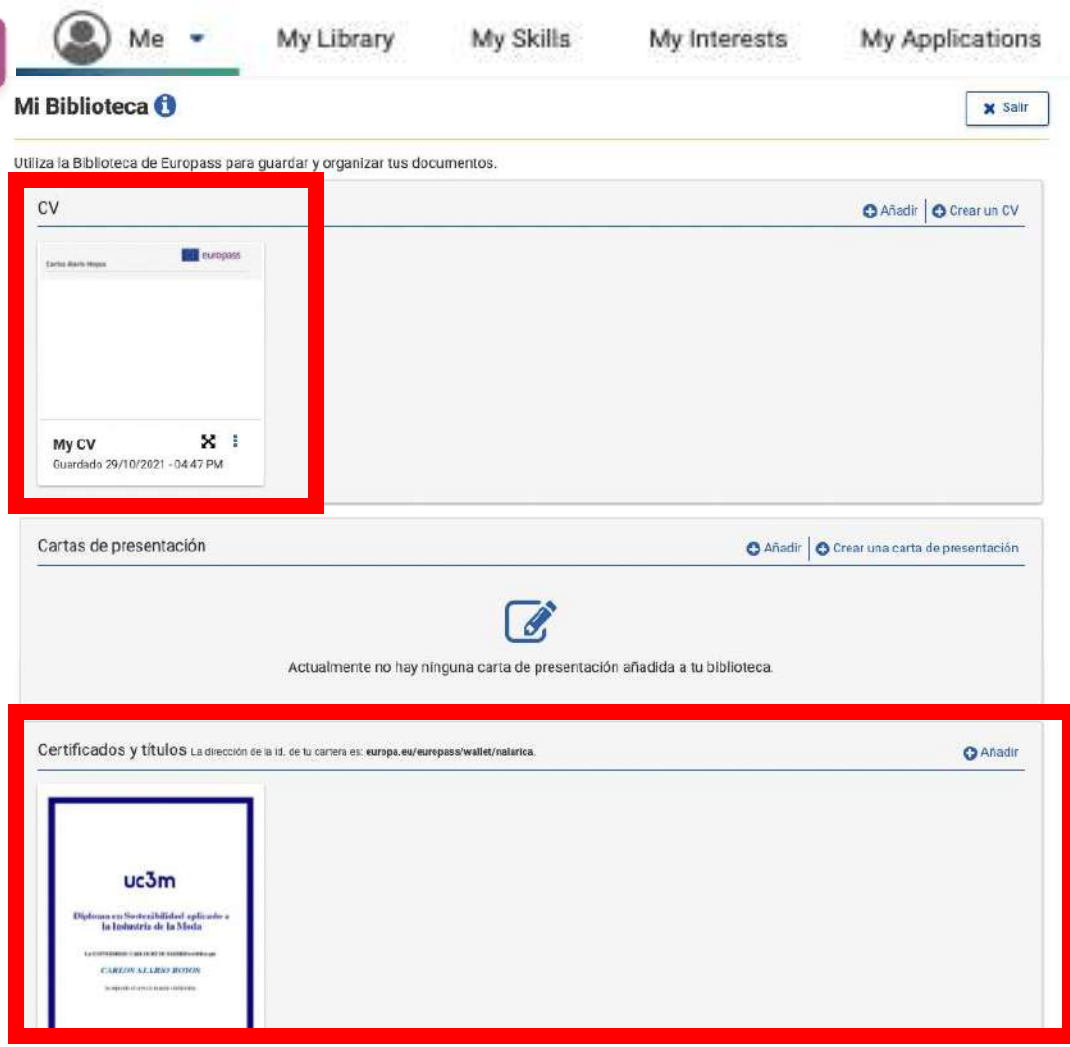
Storage in wallet

Customized CVs with the certificates in my wallet

Certificates in the wallet



Lessons learned: *storage in wallet*

01 to understand the *implications* of EDC from the point of view of *data protection regulations*

02 to *properly inform students* of the advantages of using EDC for the storage of digital credentials and to raise awareness about the creation of an EU Login

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Visualization and validation

Viewer + Renderer

+ Share with third-parties (link) with expire date

+ Export as XML / PDF

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VOGUE

European Digital Credentials

Visualization and validation

Viewer + Renderer

+ Customizable presentation (background)

Micro-GEAR

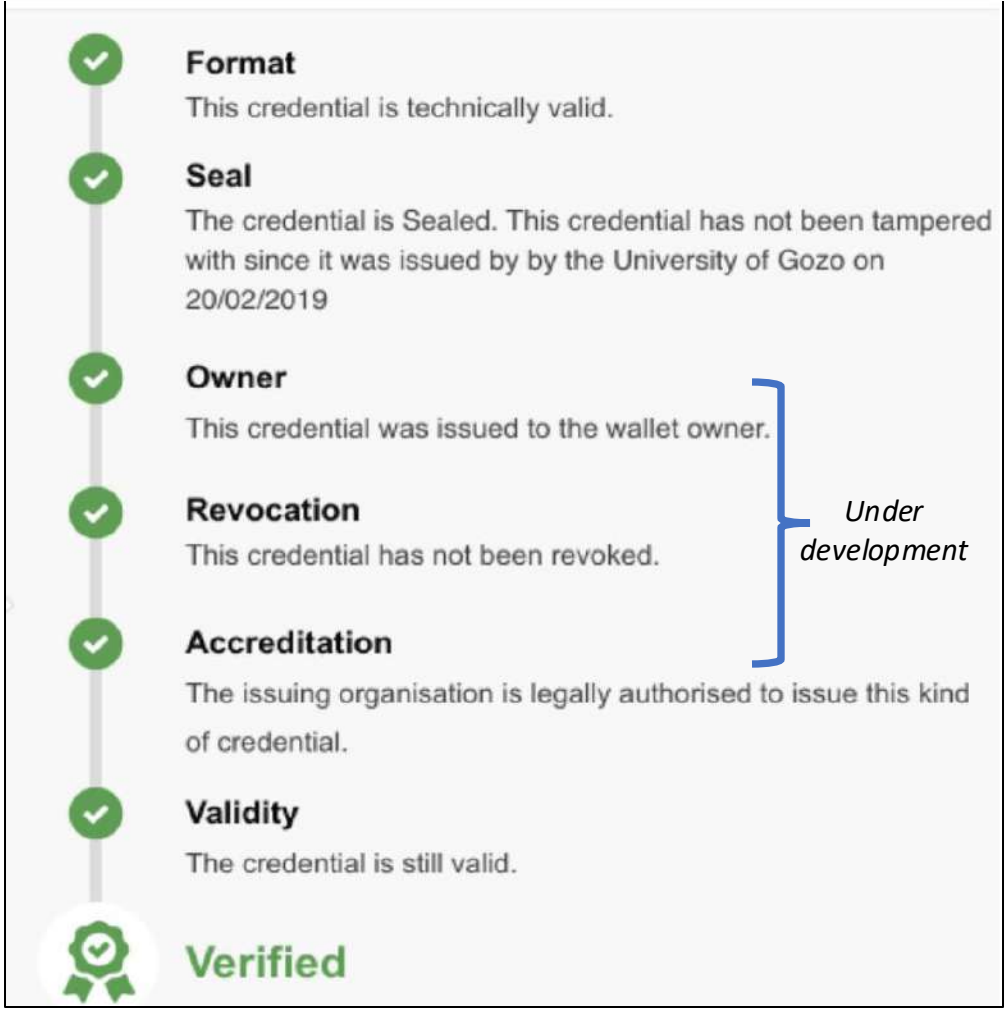
Co-funded by the European Union

VOGUE

European Digital Credentials

Visualization and validation

Viewer + Verified



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VOGUE

European Digital Credentials

Visualization and validation

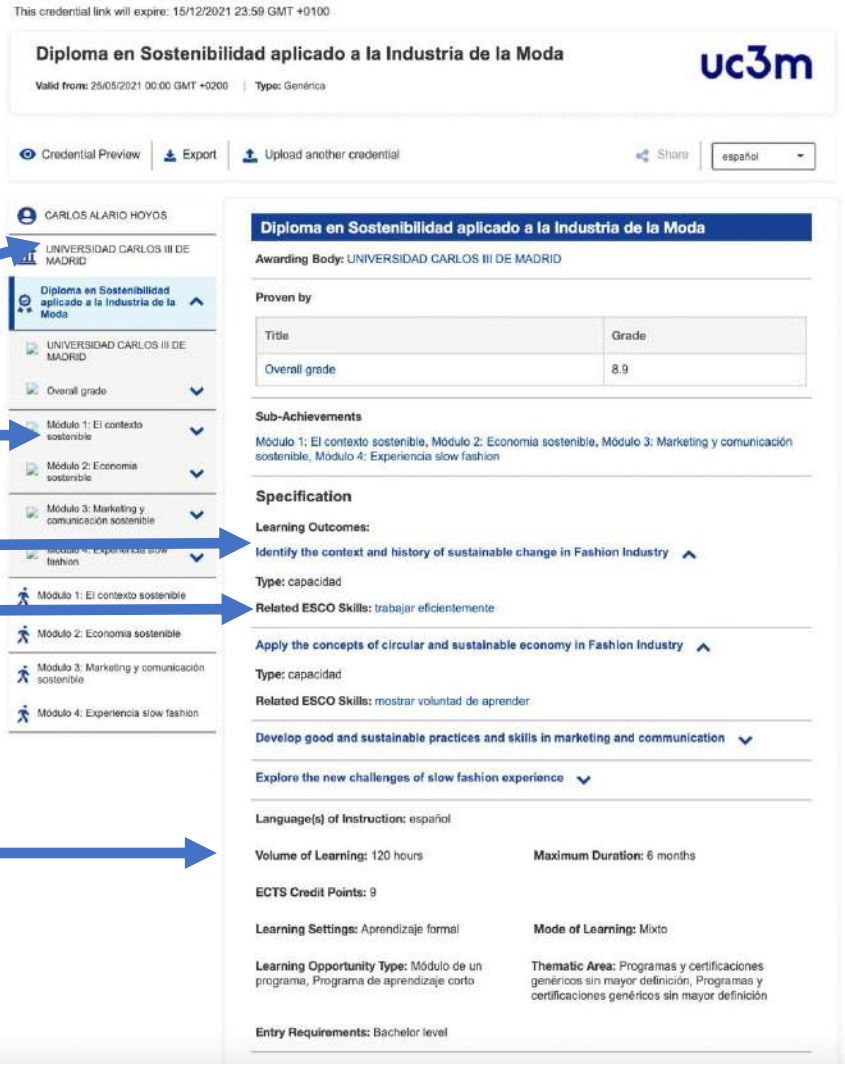
Issuing organization

Achievements

Outcomes

(ESCO skills)

Workload



Lessons learned: *visualization and validation*

01 to think *about who learners want to share each digital credential* with

02 to *make employers aware of the potential of this type of digital credentials* as a complement to the official academic degrees

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University Digital Backpack

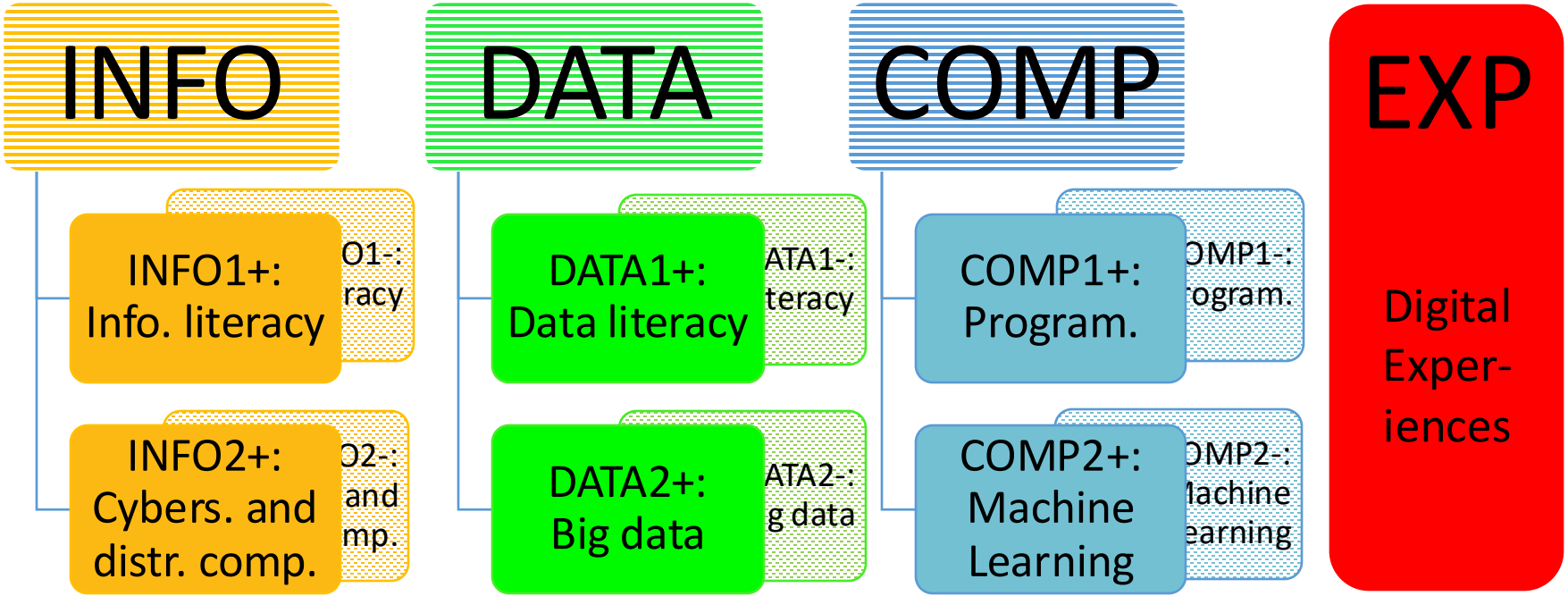
- **Short program** for **university students** on **digital competences (2022/2023)**

https://www.uc3m.es/formacion-continua/diplomas-y-cursos/mochiladigital

University Digital Backpack: Objectives

- To increase the **employability** of university students
- To increase the **competitiveness** of our business network
- Expand the possibilities for employers to **hire the profiles in demand**
- To foster **training in digital skills and competences**
- **Promote lifelong learning** in universities

Courses


INFO
DATA
COMP
EXP
INFO1+: Info. literacy
INFO2+: Cybers. and distr. comp.
DATA1+: Data literacy
DATA2+: Big data
COMP1+: Program.
COMP2+: Machine Learning
Digital Exper-iences

1. Within the course: *badges*

	Internal	External
Participation		
Engagement		

Transversal competences	
Specific competences	

1. Within the course: *badges*

moodle + 1EDTECH Power Learner Potential Open Badges v2.0

- Moodle (v3.9-v4.2) is Open Badges v2.0 and v2.1 certified

1EDTECH CERTIFIED

https://site.imsglobal.org/certifications/moodle/moodle

Lessons learned: *badges*

01 to *involve all course coordinators* so that they can define the digital badges for their courses

02 to *build a community with the course coordinators*

03 *to agree on the technology to be used (e.g., Open Badges and Moodle)*

04 to *associate students' traces in the with the automatic or semi-automatic awarding of badges*

05 to *consider learners' motivation on digital badges* and to inform learners appropriately

2. Per course: *micro-credentials*

- Passing a course (2-3 ECTS) means getting a micro-credential

- Data model and infrastructure: **ELM and EDC**

Lessons learned: *micro-credentials*

01 to *adapt the internal regulation of the university* to issue digital credentials with EDC

02 to *work with the course coordinators so that they understand the ontology* (achievements, assessments, activities, outcomes, entitlements) and their benefits

03 to *raise awareness among students of the importance of the micro-credentials obtained*

3. U. Digital Backpack. *University Diploma*

- After passing the 20 ECTS a University Diploma is obtained issued by UC3M
- Meets the requirements of the ANECA (Accreditation Agency)

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EL RECTOR
DE LA
UNIVERSIDAD CARLOS III DE MADRID

Considerando que

ha cursado los pertinentes estudios, con 60 créditos ECTS, cuyo contenido se detalla al dorso, con carácter de título propio se expide el

TÍTULO DE

Getafe, abril de 2021

El interesado, El Rector, El Director del Máster.

Lessons learned: *University Diploma*

01 to *adapt to the legislation imposed by each country in relation to the characteristics and issuance of micro-credentials*

02 to have a *combination of digital credentials and paper-based diplomas*

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