Digital Credentials in EU HE

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New paradigm for education: verifiable digital credentials; gaining real interoperability while really empowering students/citizens

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Abstract

New European paradigm for identity and data

This session will set out the model that the European Commission itself and the Member States have made available for the accreditation of educational achievements, effectively enabling lifelong learning, personal paths of learning, stacking credentials, as well as the mobility of both the identity and the student record.

Beyond accreditation, this new paradigm enables an opportunity to standardize interoperability in interaction with digital services, while fully empowering the citizen, who takes real control of both their identity (identities) and their data, thanks to self-sovereign identity.
What are digital credentials?

In a simple way, we can define a digital credential in the educational context as the accreditation of an educational achievement by digital means, which allow to verify both the integrity of the information contained, as well as the issuer of the digital credential, and the recipient to which it has been credited with such educational achievement.

When we talk about educational achievement, we say it broadly. We mean any type of educational achievement:

- accredited and non-accredited education
- Formal and non-formal education, competences, skills, activities, microcredentials, etc.

Technology is evolving rapidly and is transforming entire sectors of society, producing significant changes around accreditation in the education sector, as the needs of the workforce have changed dramatically. In this sense, digital credentials open new paradigms and paths in learning, in which the degrees obtained in colleges and universities will be one of the many paths to successful careers. Change will affect all areas, from schools, colleges and universities to employers.
Opportunities

FROM A BUSINESS PERSPECTIVE

...SO MUCH MORE THAN DIGITAL COURSE CERTIFICATES!
Teaching and learning value chain

Opportunities: Flexibilize, recognize ... accreditate ... add value

- Curriculum Design
- Recruitment
- Admission
- Student Enrolment
- Curriculum Delivery
- Student Assessment (assess)
- Graduation (confer)
- Advancement (improve)

- ECTS
- Competences
- Skills
- Activities
- ...
- Microcredentials

- Perform
- Non assessed
- Assesed

Recognize/accreditate
New paradigm

- Siloed Ecosystem
- Centralised Ecosystem
- Federated Ecosystem
- Decentralised Ecosystem

- Add-hoc identity
- Managed Identity
- Federated Identity
- Self Sovereign Identity

- Paper Documents
- Digital Documents
- Digital Credentials
- Verifiable Credentials

- Non-managed Data
- Managed Data
- Single Digital Gateways
- Self Sovereign Data Management

- Recognition of Formal Education
- Quality Assurance, Standards, Interoperability (technical, legal, semantic, governance)...
- Recognition of All Learning

Source: Lluis Ariño and Alex Grech EBSI/2021
Challenges (at EU scale)

NOT JUST TECHNICAL …

Identity
Provenance, subject, third party validator

Data
Integrity, Authenticity, Near real time status

Cross-border dimension
Interoperability
National competencies
National legislations

… BUSINESS DOMAIN

Source: UNESCO
New paradigm

Citizen centric; breaking silos

Aligned to:
- EU Digital Strategy
- EU Data Strategy
- EU digital credentials action plan
- EU Digital action plan
- Europass decision
- Europass Digital Credentials
- European education area
- European research area
- European universities initiative
- European skills agenda
- eIDas trust framework
- GDPR
- Once only principle (enabling the citizen’ perspective)
Interoperability: 4 dimensions

Organizational

Semantics

Legal

Technical
Interoperability: Technical

EBSI

Common Data Model
The common way to describe educational credentials (contents)

Verifiable Credentials
The common way to package information (content)
Interoperability: Semantic

Common Data Model
The common way to describe educational credentials (contents)

Verifiable Credentials
The common way to package information (content)
Interoperability: Legal

Three main aspects:

- EBP agreements/contracts
- Identity (eIDas)
- Data
  - GDPR
  - National legislations
Interoperability: Governance

**Entities:**
- Natural Person
- Legal Entity
- Student
- Education Institution (TI)
- TAO
- TAOR Admin
- TAOR offline check to verify Legal Entity entitlement to become TAO
- MS’ TAO will do an offline check to verify Educational Institution entitlement to become TI

**Domain Accreditation Governance:**
- V Credential Authoritative source
- ESSIF - Diploma Authorities
- Source of trust

**IUSD:**
- DID
- EOS
- TI
- TIR
- DIDR
- ESR
- TAOR
- TSR
- RER

**LoA**
- High LoA (eID)
- Substantial LoA (MyAcademicID)
- Low LoA (other means)

**Types of Roles:**
- “Can act as”
- “Is”
- “Accredits”
- “Owns”
- “Responsible”

**Notes:**
- Entities: Natural Persons and Legal Entity
- Domain Accreditation Governance. Each domain may have a different legal meaning for accreditation processes, bodies, etc.
EBSI From idea to production: Adoption

- EBSI start of operations with distributed nodes all across Europe
- EBSI v1
  - Demonstrator
  - CEF Call
  - Piloting Framework Learning Package
- EBSI v2
  - Early Adopters Programme
- Production and Scale up

- Digital Europe Programme

Timeline:
- Q1 2019
- Q1 2020
- Q2 2020
- Q4 2020
- Q1 2021
- Q2 2021
New paradigm: the EBP - EBSI way

Concept of verifiable credential and the Digital Wallet

Issuer
Udo, University of Ghent

User
Eva, the student

Verifier
Biel, University of Rovira i Virgili

CONCEPT 1
Verifiable Credentials (VC)

CONCEPT 2
Verifiable Presentation (VP)

Blockchain (EBSI)