# EQAR Conference 2021/12/07

EBSI Diploma UC

EBP and EBSI

The European Blockchain Partnership (EBP) is a group of 29 countries and the EC. We help public administrations accelerate the creation of trustworthy cross-border digital services.

European Blockchain Service Infrastructure (EBSI) is the first EU-wide ledger infrastructure.

EBSI is a solid node network

Legend
- 🟨 MS Deployed in V2 Pre Prod
- 🟦 MS Deployed in V1
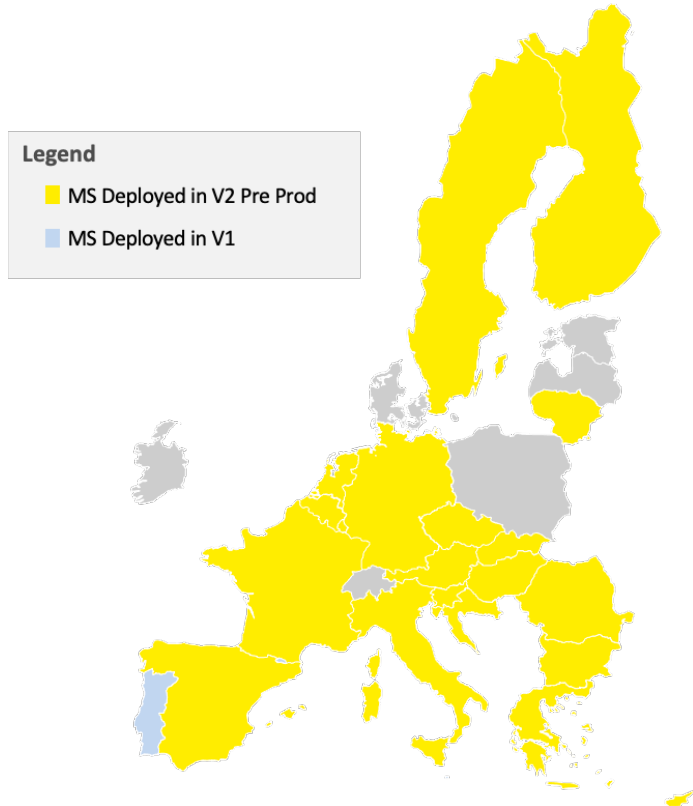
38 nodes in 21 countries

of which 30 on V2

Nodes per country:

Austria (1)	Lithuania (1)
Belgium (1)*(1)*	Luxembourg (1)
Bulgaria (2)	Netherlands (2)
Croatia (1)	Norway (1)
Cyprus (1)	*Portugal (1)*
Czechia (2)	*Romania* (1)*(1)*
Finland (1)*(1)*	Slovakia (1)
France (2)	Slovenia (1)
Germany (2)*(2)*	Spain (3)
Greece (1)*(1)*	Sweden (1)
Hungary (1)	EC Nodes
Italy (2)*(1)*	

(Blue Italics are nodes on V1)

V2 Pre-Production Status
https://ec.europa.eu/cefdigital/wiki/display/SUPPORT/EBSI+V2+Pre-Prod+Status

What is EBSI today?

EBSI is user centric, decentralized and reusable in multiple contexts and use cases. It is based on open standards to stimulate interoperability and the creation of cross-border public services

Actors

| TAO | Issuer | Hold | Verifier | TAO | Issuer | Hold | Verifier | TAO | Issuer | Hold | Verifier | TAO | Issuer | Holder | Verifier | TAO | Issuer | Holder | Verifier | TAO | Issuer | Holder | Verifier |

Gov. Entity | Gov. Entity | Citizen | Gov. Entity | Gov. Entity | University | Student | Company | Gov. Entity | SS Institution | Worker | Inspector

UCs

| ESSIF | Education | Social Security | Document traceability | Trust data sharing | SME financing |

EBSI

EBSI Verifiable Credentials Profile *(based on W3C)*

Ledger Infrastructure **and** Trust Framework and Governance Framework (registries)

EBSI supports the creation of cross-border services e.g. for citizens to manage their own identity and data (e.g. educational credentials)

Traceability
of digital information

European Self-Sovereign
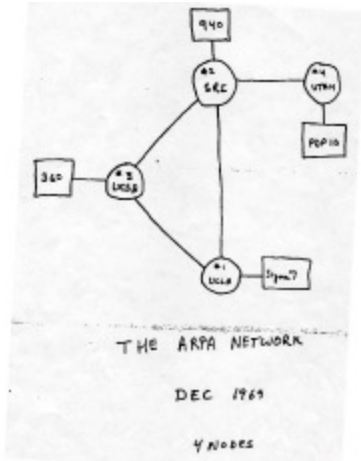Identity

Educational
Credentials
(Diplomas)

Trusted data
sharing

(Concerning TAXUD's Community
at this stage)

3 new use cases are in initiation phase / design phase
SME financing, European Social Security Pass, Asylum demand management

ARPANET

'**_Self-Sovereign Identity_** [decentralized identity] is the next step beyond user-centric identity and that means it begins at the same place: the user must be central to the administration of identity.'
— **Christopher Allen**

Purpose and desired outcomes of the use case

Purpose

- To provide reusable specifications and services to **manage educational credentials across borders**.
- **Give control back to citizens**

Desired Outcome

- **A common underlying building block** to: issue, manage and verify diplomas using the highest levels of security and privacy by leveraging EBSI blockchain technologies

Scope of the Diploma Use Case is all levels of Lifelong Learning

New paradigm

Focusing on citizen, breaking educational SILOs, enabling LLL, PLP & stacking credentials
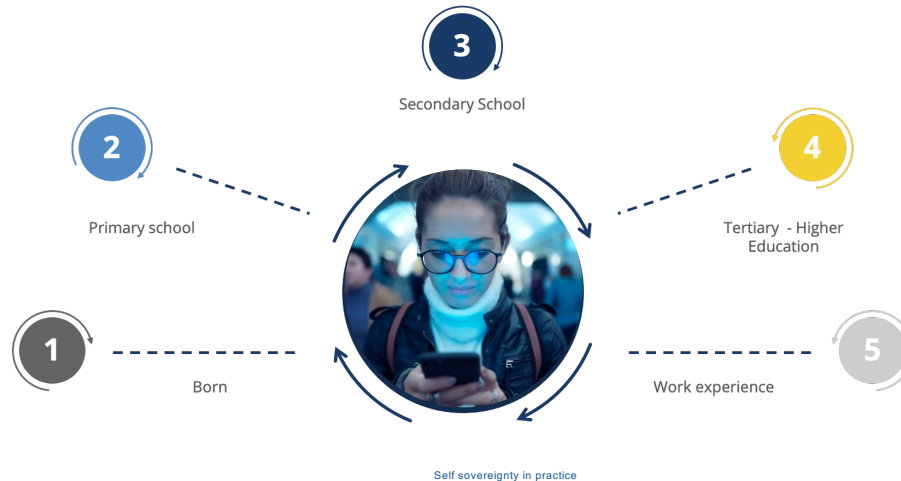
Aligned to:
- EU Digital Strategy
- EU Data Strategy
- EU digital credentials action plan
- EU Digital action plan
- Europass decision
- Europass Digital Credentials
- European education area
- European research area
- European universities initiative
- European skills agenda
- eIDas trust framework
- GDPR
- Once only principle (enabling the citizens perspective)
- State of the Union address (091620) and European Council Conclusions (100220) for both, identity and data

- Student mobility for both, identity and records, will be a reality (through Student's Mobile wallet)
- Lifelong Learning will be a reality: credentials are owned, managed and controlled by the citizen
- Personal Learning Pathways: even easier thanks to the stacking credentials feature (as for micro-credentials)
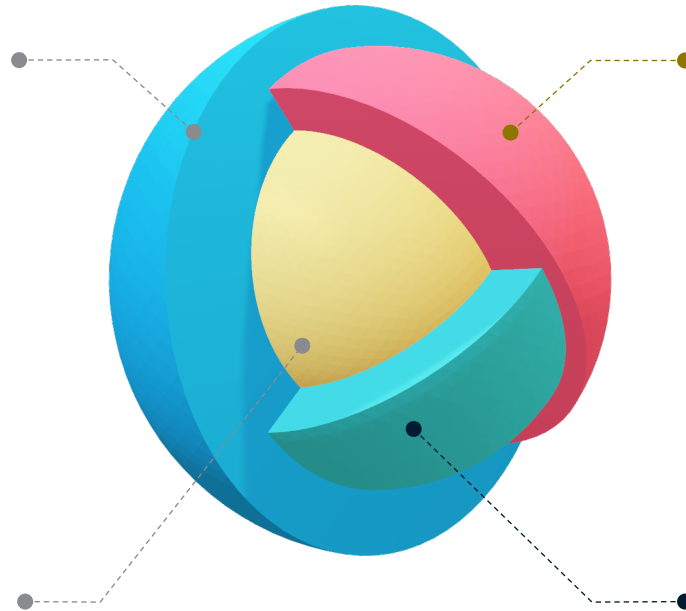
EBSI Diploma Use Case

Interoperability (a key element): Dimensions
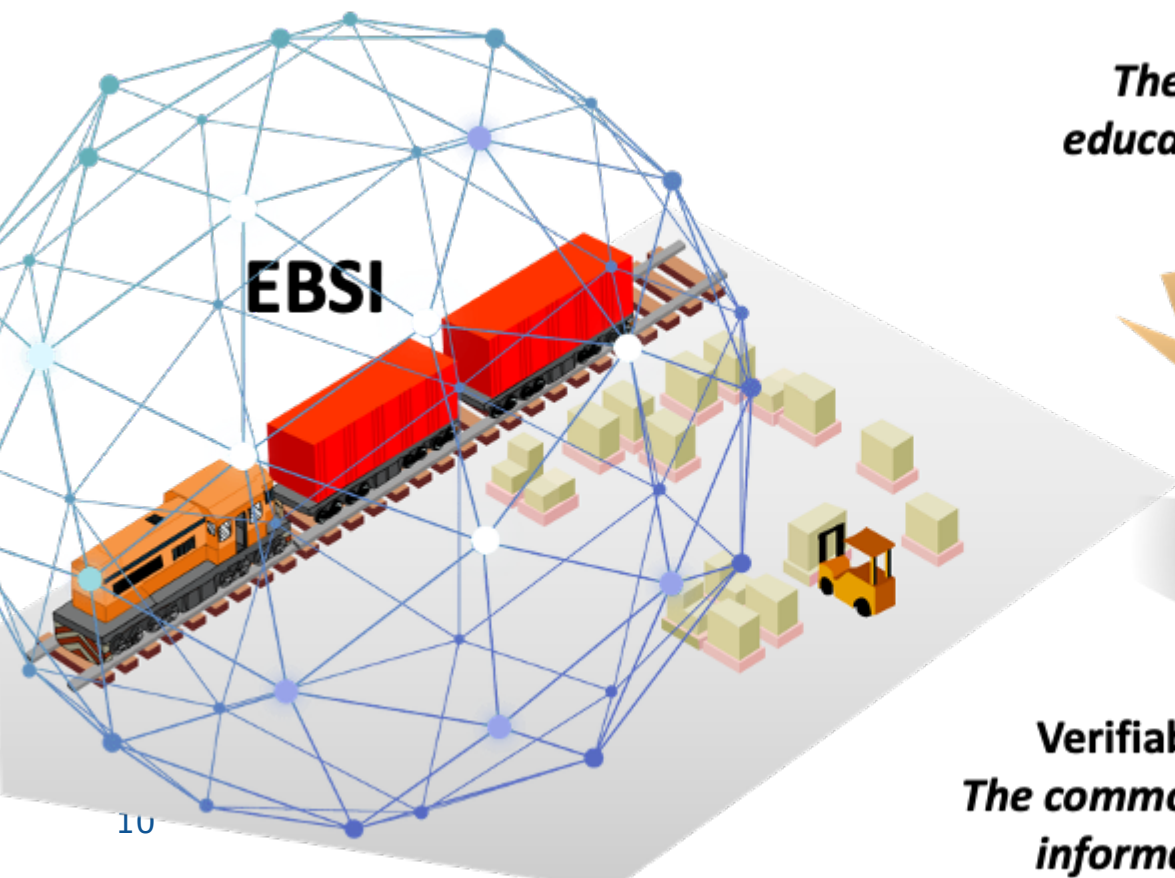
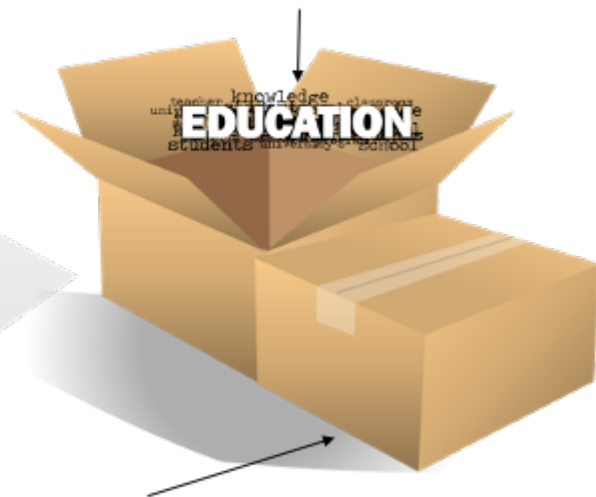**Organizational**

Legal

Semantics

Technical

EBSI Diploma Use Case

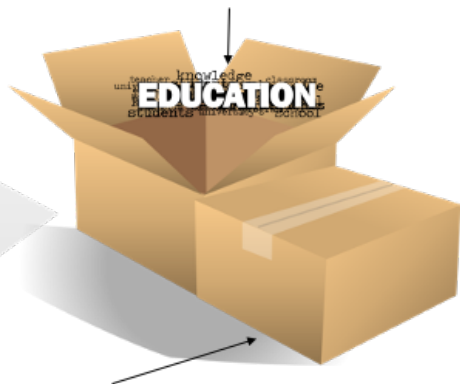**Key benefit of EBSI Diploma: Interoperability (Technical)**

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

Verifiable Credentials
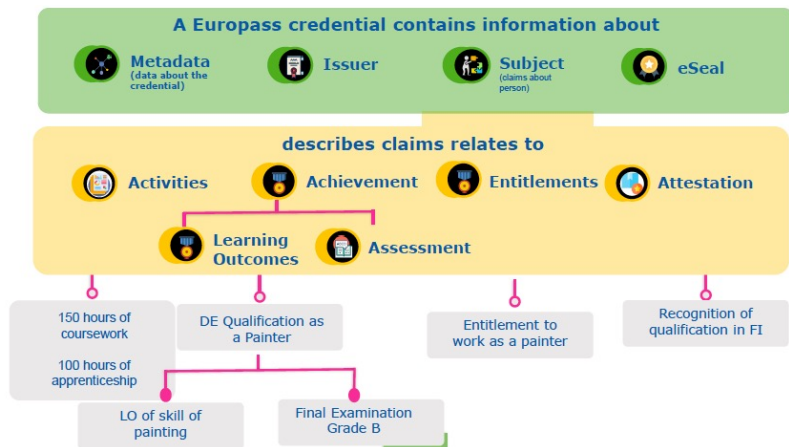*The common way to package information (content)*

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

EDUCATION

The common way to package information (content)

European Learning Model (ELM)

Achieved

Transcript

A Europass credential contains information about

Metadata (data about the credential)   Issuer   Subject (claims about person)   eSeal

describes claims relates to

Activities   Achievement   Entitlements   Attestation

Learning Outcomes   Assessment

150 hours of coursework

100 hours of apprenticeship

DE Qualification as a Painter

LO of skill of painting

Final Examination Grade B

Entitlement to work as a painter

Recognition of qualification in FI

emrex-eu/**elmo-schemas**

ELMO Schemas

👥 3 Contributors   ⊙ 12 Issues   ☆ 8 Stars   ⑂ 9 Forks

Interoperability: legal dimension

Identity

The eIDAS trust framework: the common language for cross-border

Current eIDAS only defines "levels of assurance" for Verifiable IDs: Only IDs with substantial or high LoA must be accepted by Member States

but … IDs with low LoA low may also be accepted on a voluntary basis, according to the corresponding national legislation applicable to e-Government processes

Data

Data typically embody juridical acts, such as certifying acts by public authorities and other authoritative sources (including private sector bodies with respect to data they're authoritative for).

Therefore, in the logic of eIDAS, they constitute **legally binding electronic documents, that should be authenticated according to the national legislation** (so national legislation/rules applies for cross-border mobility data)
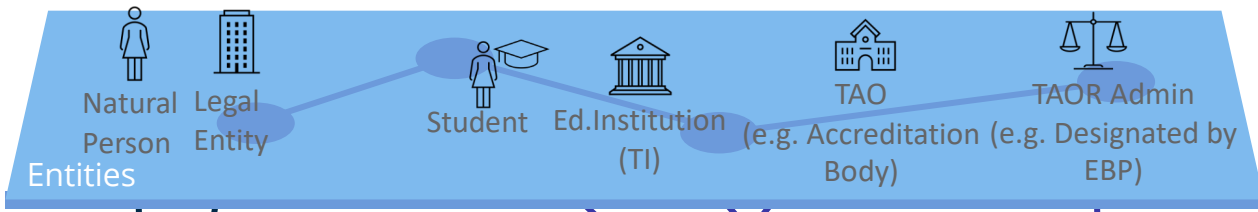
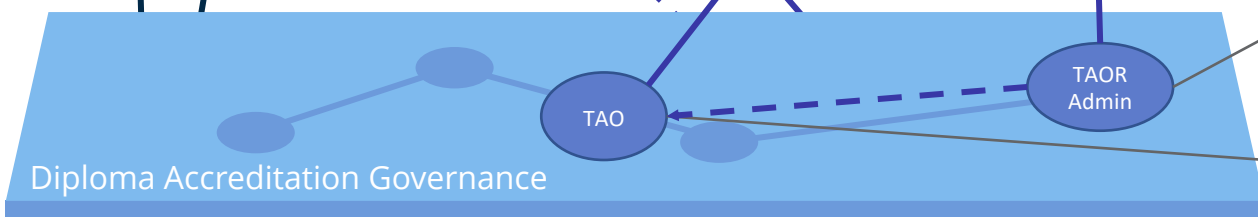# Interoperability: governance dimension

Diploma UC

Entities: Natural Persons and Legal Entity

Domain Accreditation Governance. Each domain may have a different legal meaning for accreditation processes, bodies, etc.

Diploma

V Credential Authoritative source (Domain UC' legal entities can play different roles)

ESSIF

Ledger

Entities:
Natural Person, Legal Entity, Student, Ed.Institution (TI), TAO (e.g. Accreditation Body), TAOR Admin (e.g. Designated by EBP)

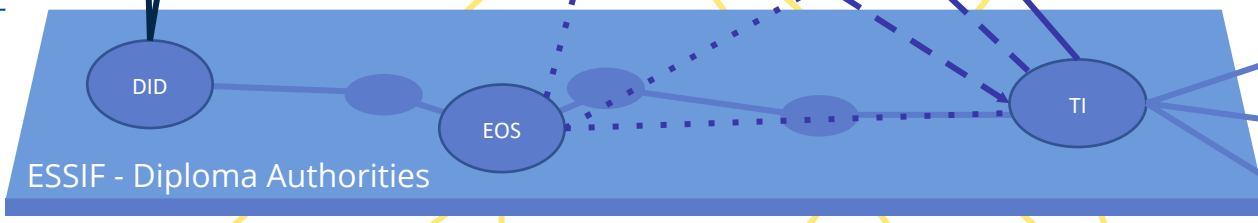**Diploma Accreditation Governance**
TAO, TAOR Admin

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

ESSIF - Diploma Authorities
DID, EOS, TI

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

Source of trust
TIR, DIDR, EOSR, TAOR, TSR, RER
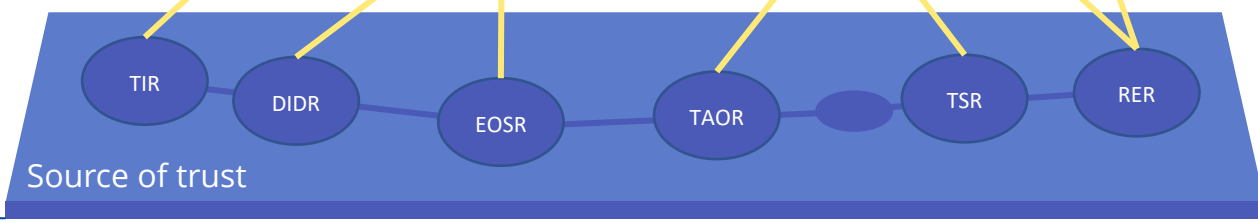
Legend:
- "Can act as"
- "Is"
- "Accredits"
- "Owns"
- "Responsible

2 European universities alliances, +18 universities from +15 countries, +EQAR

This is about creating an ecosystem. By joining it, each actor will be able to contribute to the future of Digital Europe. EQAR plays a key role in it.

Identity

A — Request and issue identity credential

B — Store evidences* of issuance (of identity credential)

C — (Present identity credential)

D — Check identity credential

i — Anchor decentralized ID

Diploma

E — Request and issue diploma credential

F — Store evidences* of issuance (of diploma credential)

G — Present diploma credential

H — Check diploma credential

Wallet

j — Authenticate and store credentials