

An initiative of
the



European
Commission

Seamless student journeys: from identity to interoperability

CEEDUCON

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EUROPEAN
DIGITAL
EDUCATION
HUB



What is the European Digital Education Hub (EDEH)?

An **initiative the European Commission**, funded by the Erasmus+ programme and operated by a **consortium** under a framework contract with the **European Education and Culture Executive Agency (EACEA)**.

- Cooperation, exchange and peer-learning
- All sectors and levels of education and training
- **Open, inclusive, supportive and practice-oriented** community for digital education stakeholders
- **Aim:** increase cooperation and exchange in digital education at EU level

Key features

- Launched in June 2022
- Part of the [Digital Education Action Plan](#)
- Cross-sectoral coverage and regional diversity across Europe and beyond

EDEH Consortium Members

(incl. Digital Education Hackathon)



Subcontractors





“**Interoperability** is the ability of organisations to interact towards mutually beneficial goals, involving the sharing of information and knowledge between these organisations, through the business processes they support, by means of the exchange of data between their ICT systems.”



(European Interoperability Framework, EIF)

Four layers of interoperability

Legal: laws and regulations, e.g. GDPR, higher education acts, ...

Organisational: procedures for programme design, enrollment, ...

Semantic: understanding of programme, module, course, ...

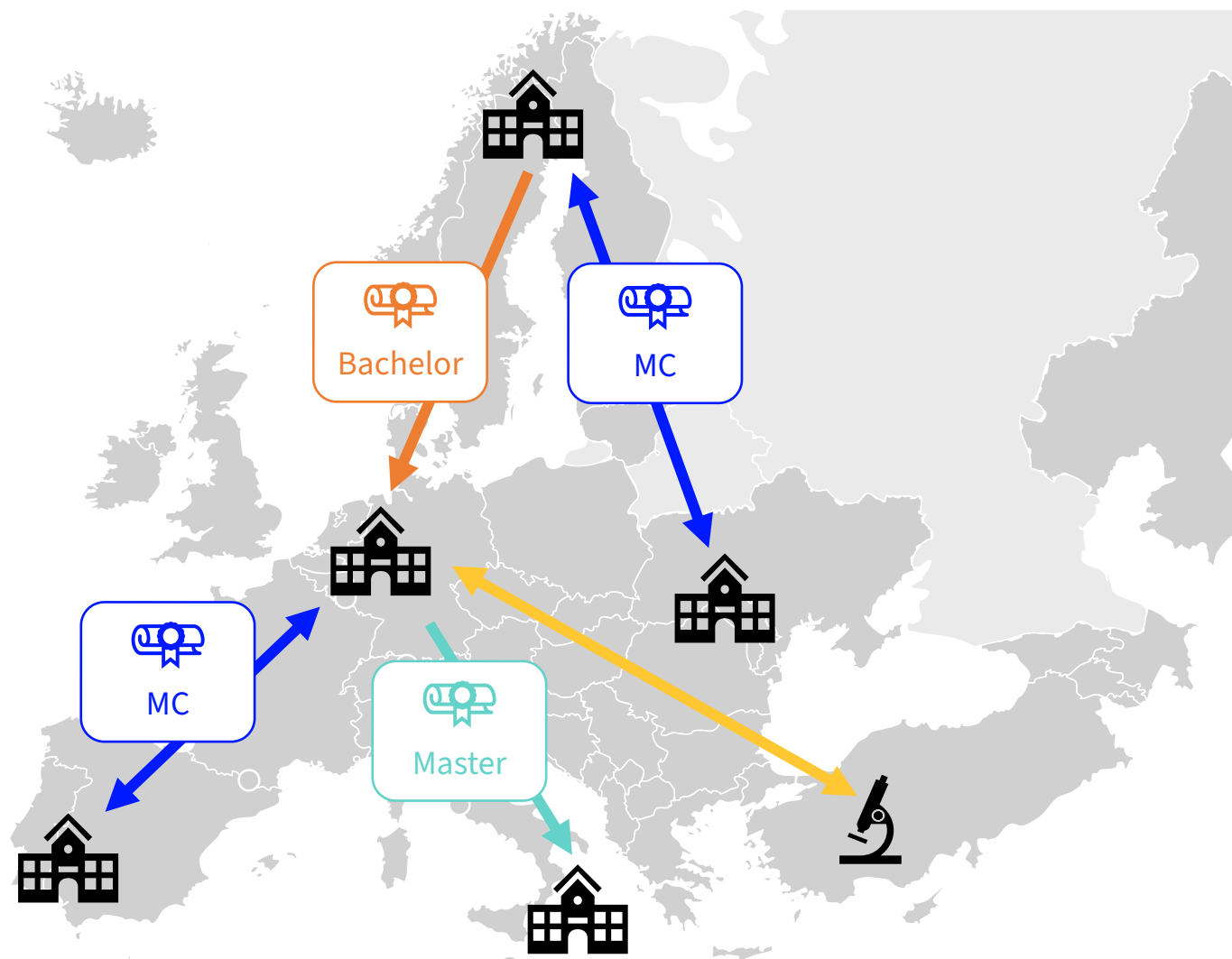
Technical: data standards, APIs, ...

Discuss with your neighbours (3 min)

- What are the main interoperability challenges you experience in your work on international cooperation?
- At which level would you situate them?

Vision: seamless **cross-national learner journeys**

User identity, accounts,
wallet, ... fully
interoperable
throughout the journey





Step 1: Call all your Friends – the HE Interoperability Workgroup

From 20 experts in the field of higher education policy and operations ...

To now 240+ experts and practitioners from HEIs, alliances, national and European organisations

Series of workshops and squads



“Does my fridge really need to talk to my washing machine?!”

Step 2: Decide what needs to be Interoperable

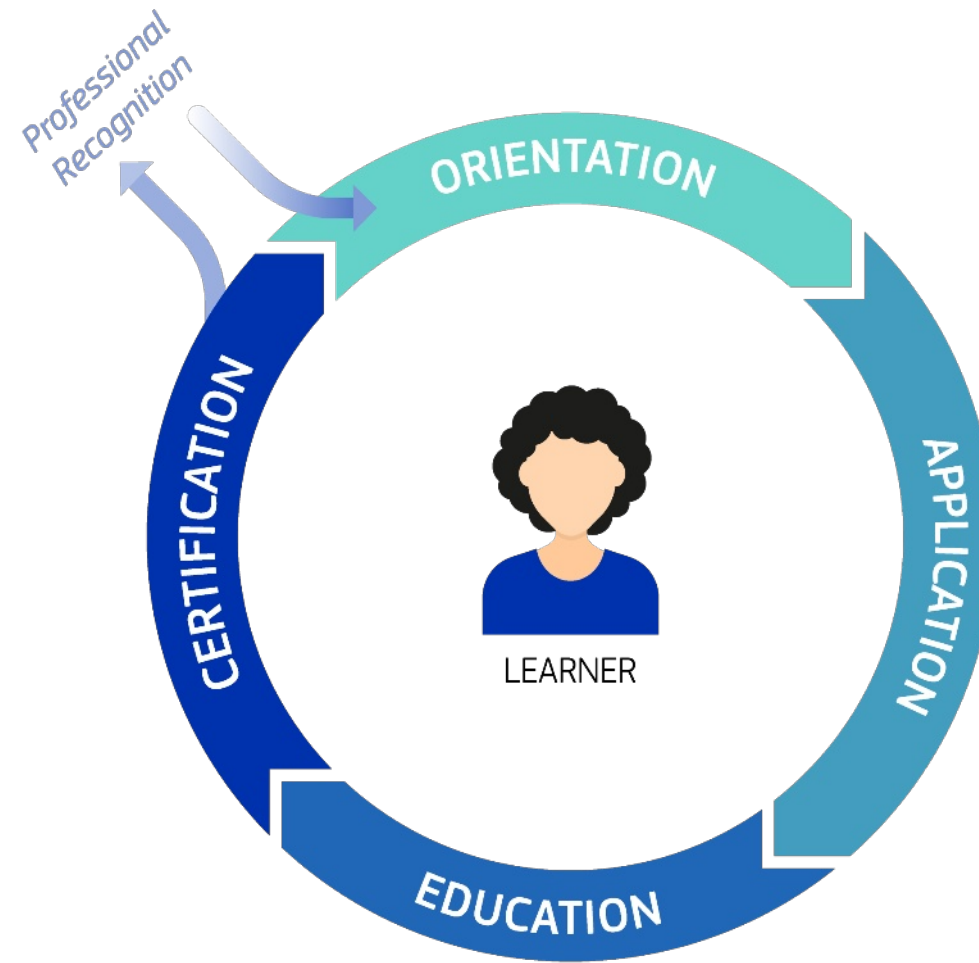
Analyse the learner journey

Series of 8 use case squads

Several online and in-person design workshops

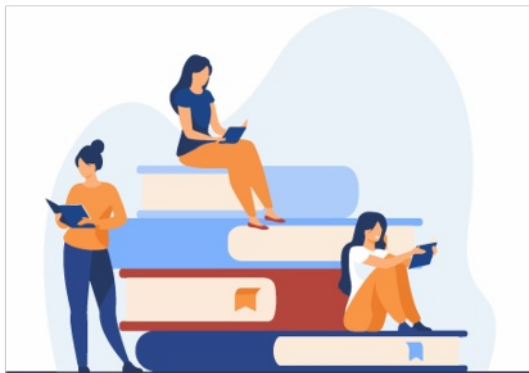
Co-created the full framework

Our reference: the steps of the **learner journey**



USE CASE 1

Discover



Enhancing the visibility and comparability of diverse learning and mobility opportunities across HEIs, emphasising the importance of machine-readable metadata for easy comparison and discovery.

CMS (Website)

Course catalogue

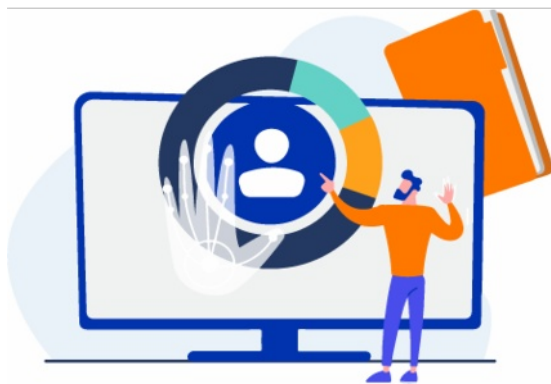
Curriculum management

ORIENTATION



USE CASE 2

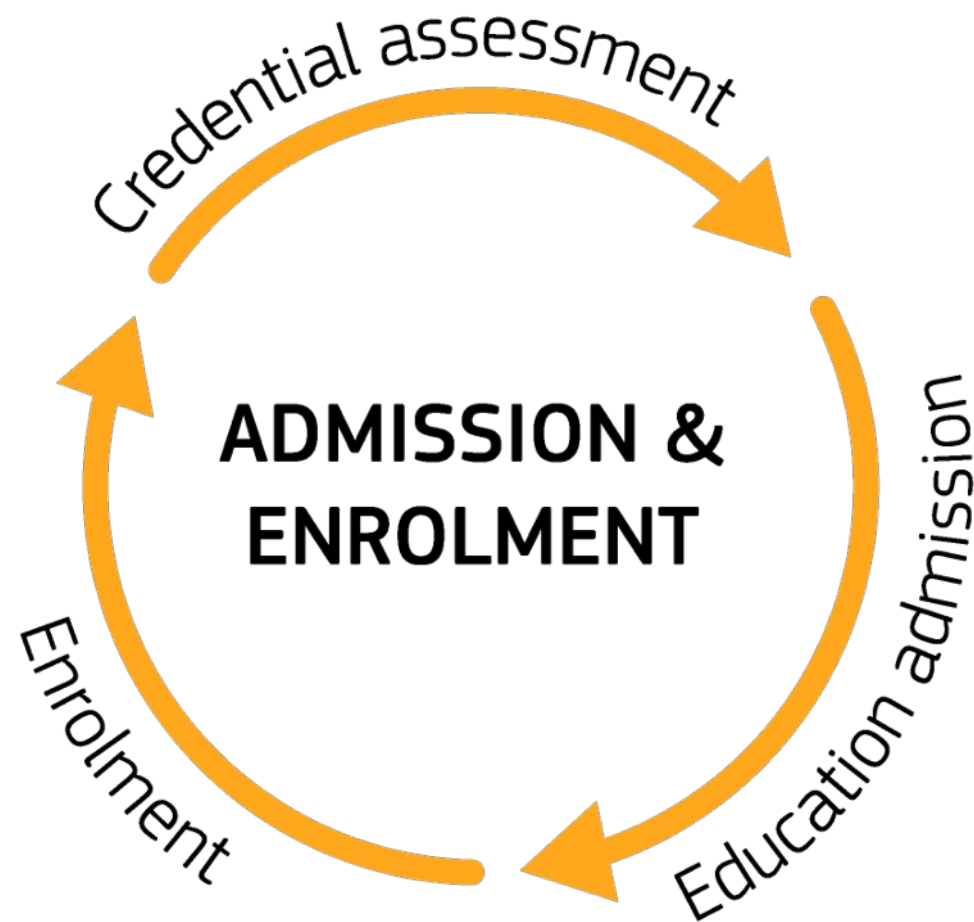
Apply and get recognition



Simplifying credit recognition and cross-institutional enrolment, emphasising seamless data exchange to support all forms of learner mobility and academic continuity.

Admissions

Recognition



APPLICATION

EDUCATION

USE CASE 5

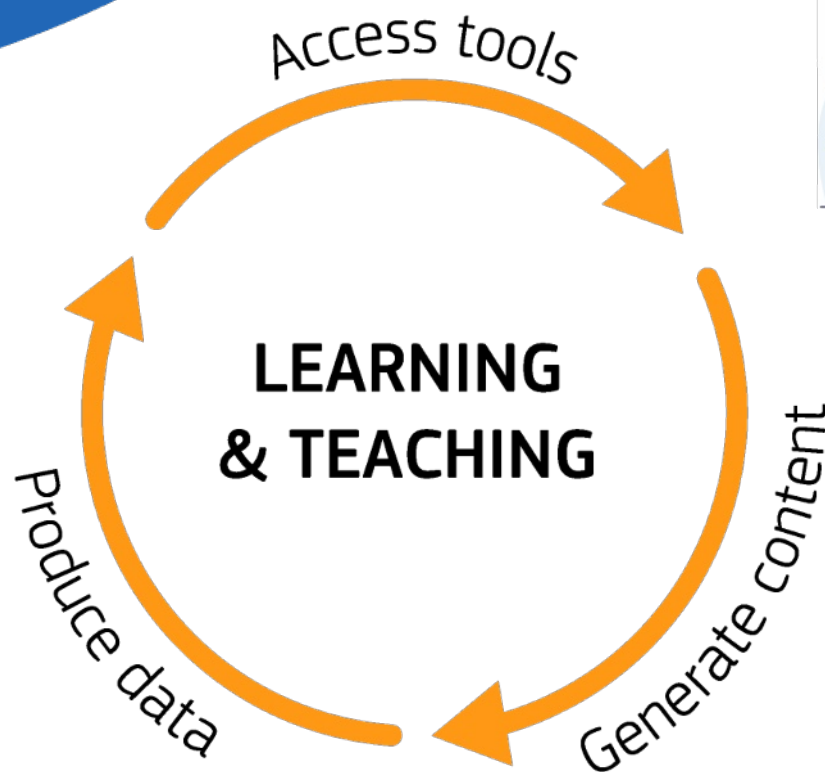
Generate data



Establishing a standardised approach for the exchange of learners' activity data to ensure a seamless integration of various virtual learning environments.

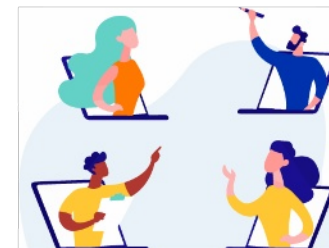
Learning Analytics
Student Analytics

LEARNING & TEACHING



USE CASE 3

Access tools

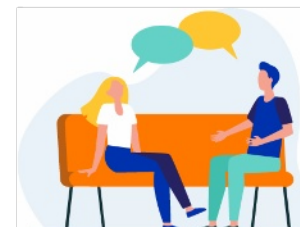


Streamlining the management and governance of shared resources among alliance members, covering both physical and virtual assets.

Laboratory access Library systems
Research tool registry

USE CASE 4

Manage educational resources



Promoting the accessibility and mobility of educational materials, fostering a collaborative and accessible educational environment.

Content generation Sharing
Use and re-use

USE CASE 6

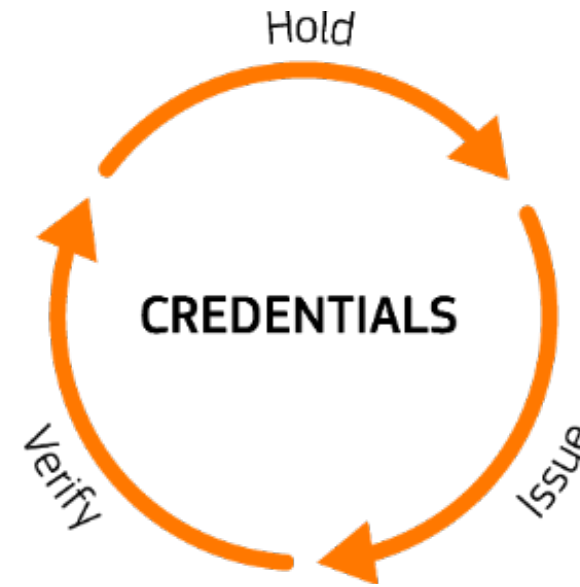
Earn a credential



The digital management of educational credentials (issuance, verification, revocation), affirming the achievements from diverse learning experiences.

Micro-credentials

Portable credentials



CERTIFICATION

Two **supporting use cases:** instrumental for most/all of the six core use cases

USE CASE 7

User identity



Achieving interoperability for user identities across educational transitions, ensuring consistent identification throughout their academic journey.

Access Federated identity

Student cards

USE CASE 8

Institutional identity



Developing a cohesive framework for trusted institutional identities, facilitating smoother collaborations and exchanges between HEIs.

Accreditation Ranking

Step 3: Map Existing Solutions

HOW STANDARDS PROLIFERATE:
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC)



Source: <https://xkcd.com/927/>

Step 4: Conclusions

Situation	Recommendation	Example
One dominant solution or standard	No action, or continued support	EWP/ESCI already set to manage all (Erasmus) mobility docs
Multiple competing standards	Interoperability solutions: cross-walks, exchanges, converters	Data standards for course catalogues (ELM, OOAPI, OCCAPI, Edu-API, ...)
Solutions exist, but have failed to scale	Support adoption through various means	Limited uptake and acceptance of digital credentials (e.g. EDC)
There really is no solution	Double check!	
There really really is no solution	Develop a standard or a service	No European Course Identifier.

Vision		Manifesto	All stakeholders	The Manifesto is at the heart of the development of a European Higher Education Interoperability Framework. It guides the higher education interoperability working group in the European Digital Education Hub.
Governance		Proposal for a Multi-Stakeholder Coordination Group on European Higher Education Interoperability	Policy and decision-makers, umbrella organisations	Proposes a transparent, inclusive and sustainable way to coordinate work on the European Higher Education Interoperability Framework.
Implementation		Implementation resources	HEI and EU-As leadership, task leaders, ICT staff	The resources offer a modular and flexible kit with elements that can be adapted and shaped at the level of HEIs and EU-As to fit their individual realities and needs.
Analysis, inventory, recommendations	   	European Higher Education Interoperability Framework An analysis of the state of interoperability across Higher Education systems in Europe (Synthesis report) An inventory of standards, processes, and ICT systems accross Higher Education (Mapping report) Glossary	HEI and alliances leadership, ICT staff Decision makers, HEI and EU-As leadership HEI and EU-As leadership, ICT staff All framework users	Combines key elements from different reports. Includes descriptions of the reference architecture, high-level business flow diagrams, and helpful recommendations to find concrete solutions to address identified gaps. Analyses data from over 40 EU-As, generating insights for future decision- and policy making. An inventory of standards and solutions currently in use at EU-As. Glossary of terms and concepts.
Reference architecture		Blueprint reference architecture and ArchiMate models	ICT staff	Describes the technical aspects of the reference architecture as built in the open architecture modelling language ArchiMate. Presents three complementary views for each of the eight priority use cases identified: organisational, semantic, and technical.

HEIF and the European Student Card Initiative (ESCI)

ESCI APIs / Use cases	Discover (1)	Apply and get recognition (2)	Access tools (3)	Manage educ. resources (4)	Generate data (5)	Earn a credential (6)	User identity (7)	Institutional identity (8)
European Student Card							*	
EWP Reg & Institutions	*							*
EWP Courses/OCCAPI	*							
Inter-institutional agreement (IIA)		*	*	*	*	*		
Nominations API		*						
Learning Agreement API			*					
Transcript of Record API					*	*		

Current HEIF Activities

Multi-
Stakeholder
Coordination
Group &
Three Task
Forces

Online
Community
Activities
for the
Workgroup

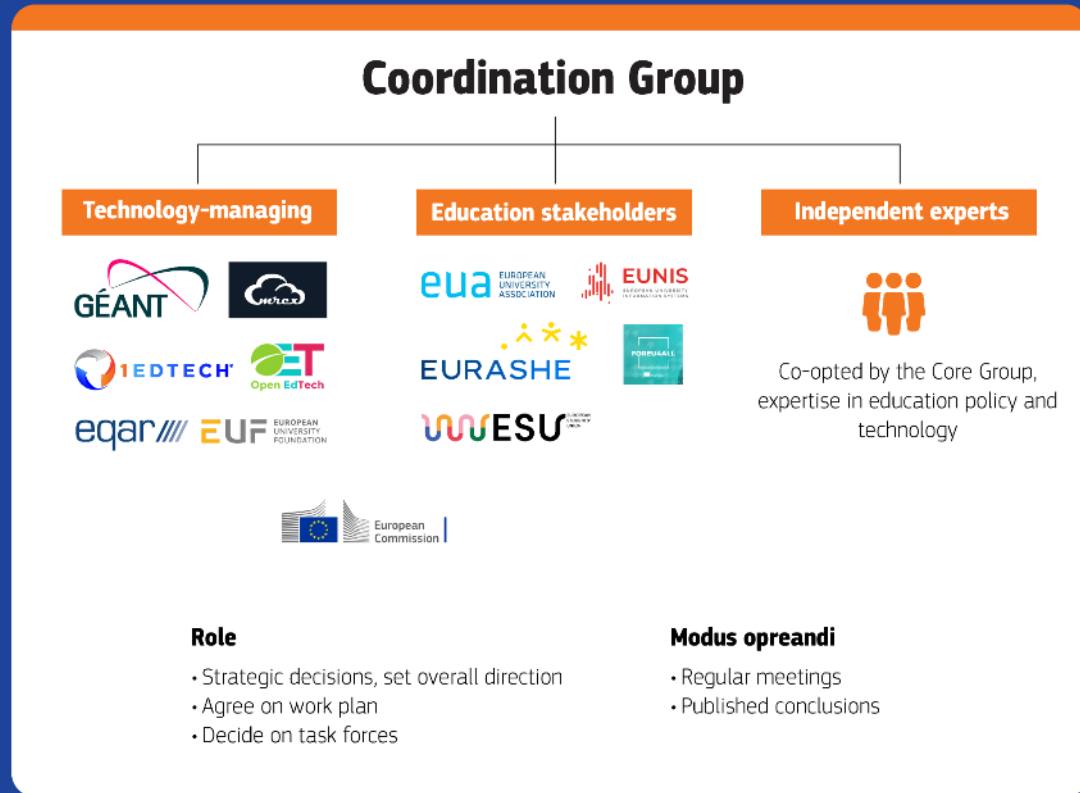
Web pages
and online
courses
(Mini-
MOOCs)

Early
Adopters
Activities



Coordination Group Structure

A “network of networks” to provide European-wide leadership and facilitate collaboration.

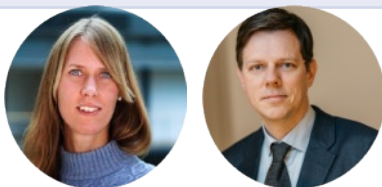


Task Forces and Outputs

(by February 2026)

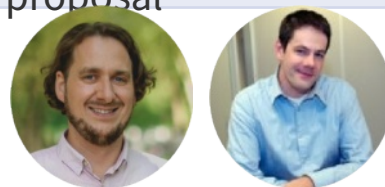
TF1: Strategic Approach to Interoperability

- ✓ Strategic vision with long-term goals for higher education interoperability in Europe



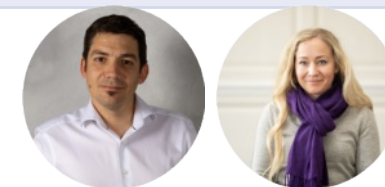
TF2: Data Models and APIs for Educational Data

- ✓ Comparison of existing standards: scope, semantic and technical differences (4 UCs)
- ✓ Mapping of core concepts, properties and controlled vocabularies (UC1 in this period)
- ✓ Generic API catalogues and registries proposal



TF3: User Identity

- ✓ Analysis of eduGAIN coverage and reasons for HEIs missing
- ✓ Analysis of the main usage flows across different use cases
- ✓ Proposals for enhancing eduGAIN coverage
- ✓ Inventory of identity attributes for possible inclusion in SCHAC



Early Adopters

- 25 HE institutions/
European University
alliances



Some Lessons Learned

Interoperability needs to be considered an issue of **strategic importance**

Interoperability needs a **shared vision** – but also **flexibility** and **openness** to diversity

Making systems interoperable requires **resources** and effort upfront – but **pays off**

No lack of standards as such, but **more coordination** is needed – and a few missing links

Thank you for your attention!

Join the working group:

<https://europa.eu/!mFpTHh>

Contact:

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