An initiative of the European Commission

The European Higher Education Interoperability Framework

2025 Arqus Annual Conference

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EUROPEAN
DIGITAL
EDUCATION
HUB

What is the European Digital Education Hub (EDEH)?

A **project of the European Commission**, funded by the Erasmus+ programme and operated by a **consortium of 7 organisations** 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

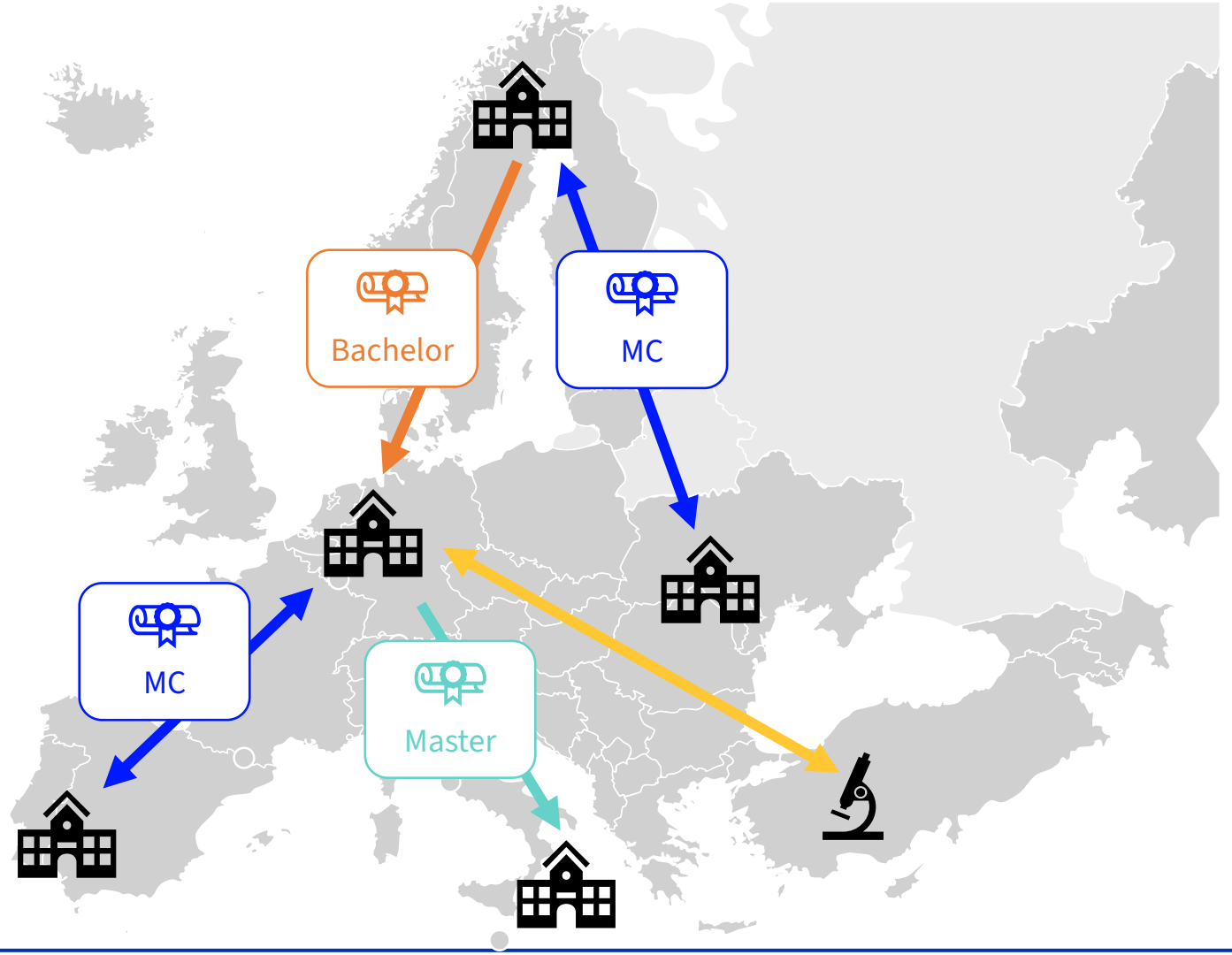
Key features

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

Context of European Mobility Programmes and Cooperation

- Milestones:
  - 1987: Erasmus programme launched
  - 2014: over 4 million students, new phase as Erasmus+
  - 2017: Sorbonne speech of Macron
- European Universities Initiative:
  - Virtual inter-university campus
  - Development of more and larger joint programmes
  - Goal of 50% student mobility across institutions
  - Today: 60+ alliances, 500+ institutions
  - Testbeds for cooperation, highlighted interoperability challenges

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



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

Interoperability in Higher Education:
A multi-layered challenges

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, ...

How the Framework was Co-Created

Working Group
ca. 200 experts from higher education institutions, alliances, EdTech, etc.

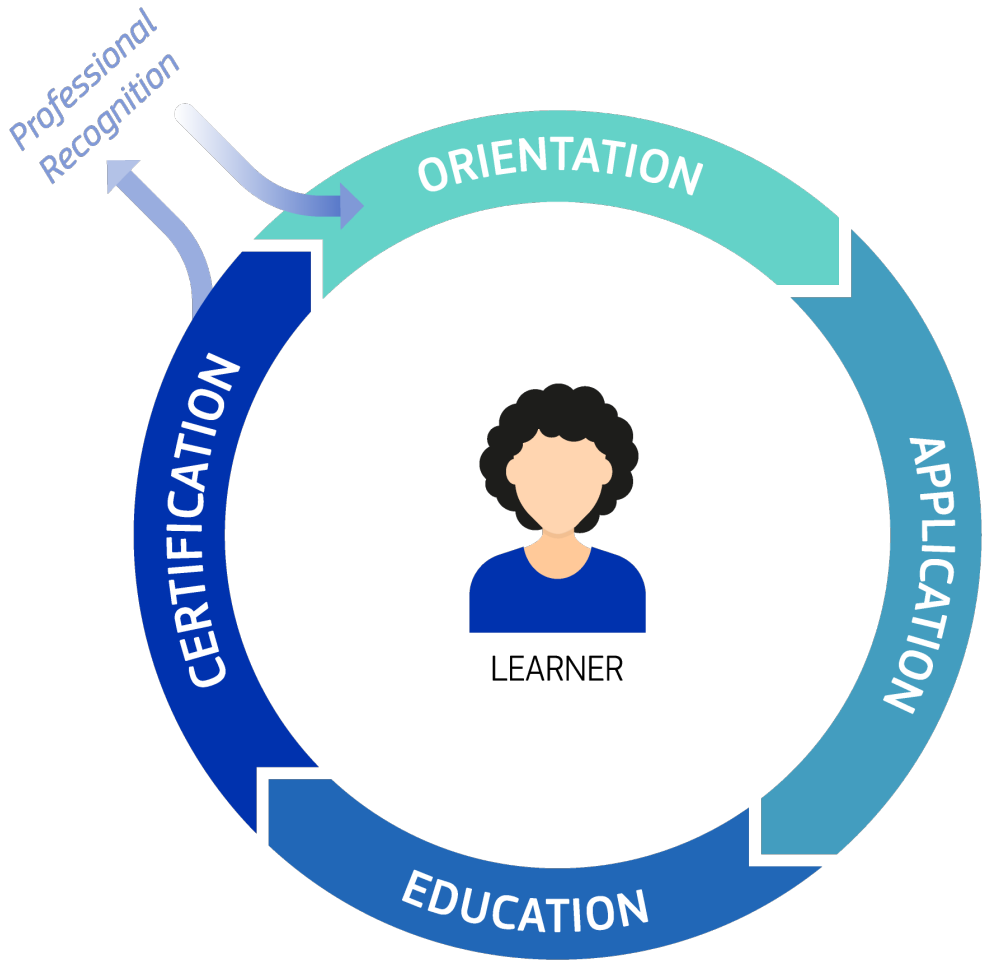
Mapping
requirements, existing solutions and gaps re. the 8 use cases

European Higher Education Interoperability Framework

Squads
on use cases, governance and coordination of interoperability

Design Thinking Workshops
with higher education institutions and alliances

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

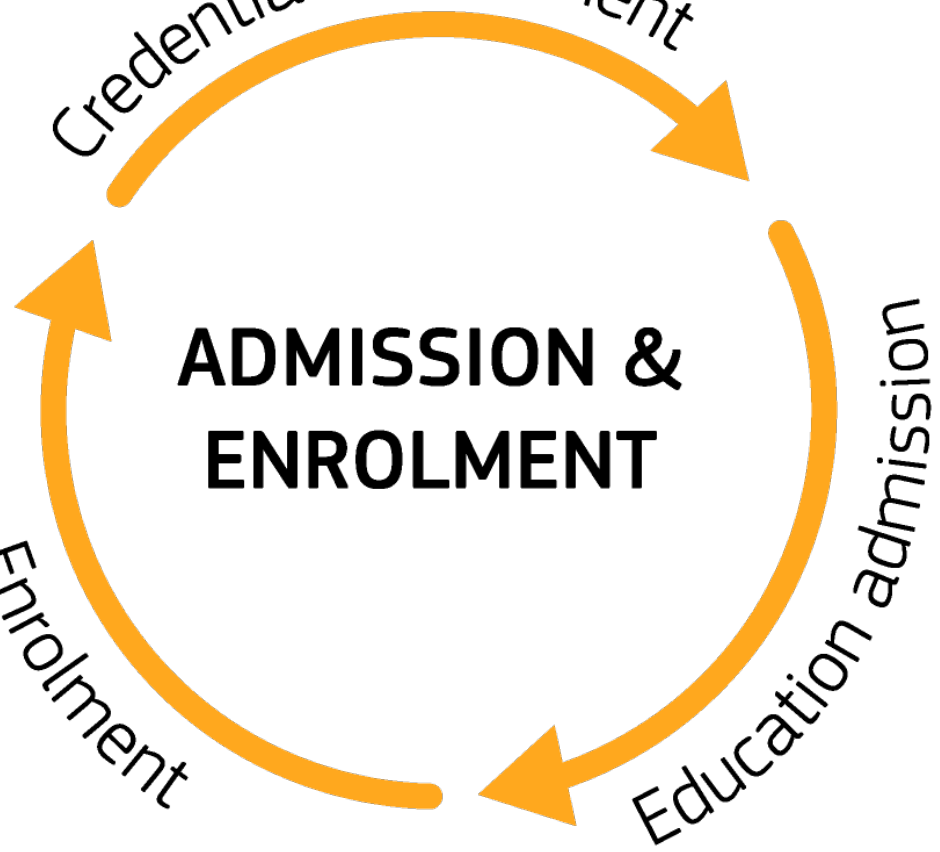
ORIENTATION

USE CASE 2

Apply and get recognition

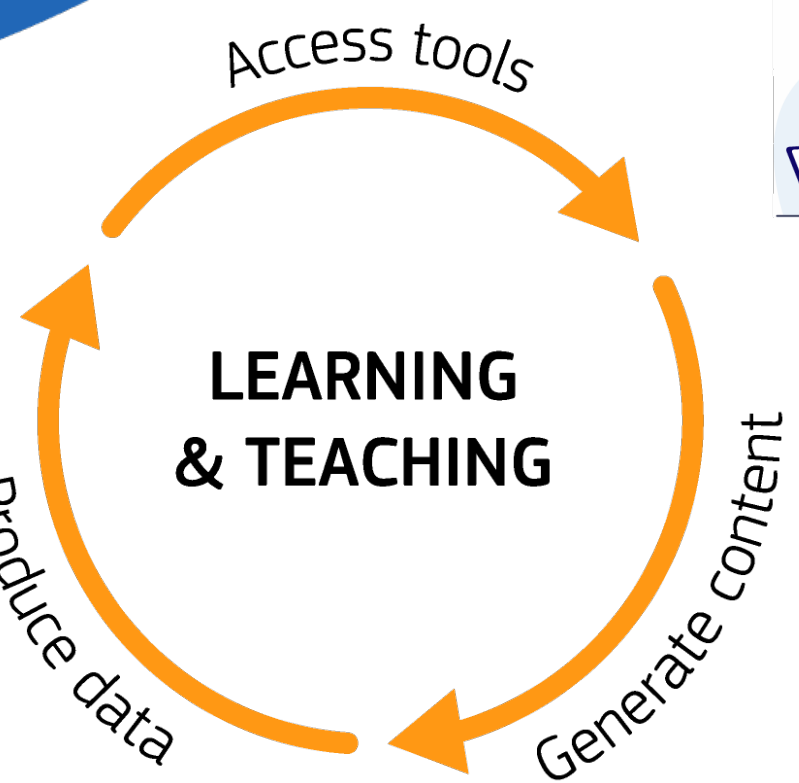
Simplifying credit recognition and cross-institutional enrolment, emphasising seamless data exchange to support all forms of learner mobility and academic continuity.

Admissions | Recognition



APPLICATION

EDUCATION



USE CASE **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 **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

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

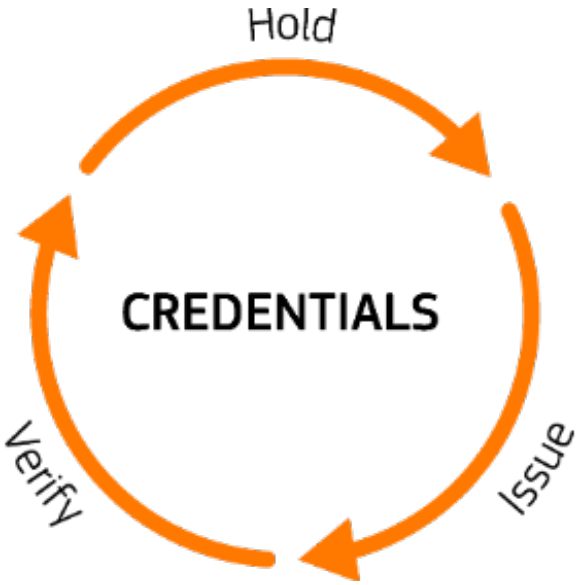
USE CASE 6

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**

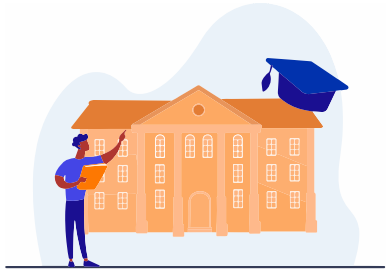
User identity

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

Alliance Journey of Collaboration

1) Signing an alliance framework agreement

Signed by the alliance upon set-up, marking the **official start** of the alliance journey.

2) WHY: Making the case for the impact the alliance wants to achieve

Materials to model and understand the impact of change based on the *Higher Education Reference Models (HERM).*

3) WHO: Setting up basic organisational structures

The **Work Planning Excel file** to map alliance member institutions, roles and responsibilities, can help to derive an alliance's governance, organisational structures and later on coordination of joint work.

4) WHERE: Understanding the landscape

The **synthesis report** can help alliances understand the state of art of the landscape in which they operate and provide for the broader context.

5) WHERE: Assessing the alliance's interoperability status quo

Self-assessment tool to assess a HEI's & Alliance's status in implementing the reference architecture, helping to identify strengths and areas to put efforts on.

6) WHAT: Gaining clarity on own objectives and gaps

The **reference architecture** provides both an overview of current solutions and enables to identify existing gaps towards full interoperability for the use cases.

7) HOW: Identifying solutions to fill the gaps

The **framework report**, together with the **mapping report** for further details on solutions, provides an overview of standards and tools, along with descriptions of the reference architecture, high-level business flow diagrams, and recommendations that can serve as a guide for concrete solutions to leverage to fill the identified gaps.

8) Making interoperability become reality for selected use cases

The **implementation resources** provided in this document can be leveraged to get started with implementation of key moments of a learner's higher education journey.

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**	HEI and alliances leadership, ICT staff	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.
	An analysis of the state of interoperability across Higher Education systems in Europe (Synthesis report)	Decision makers, HEI and EU-As leadership	Analyses data from over 40 EU-As, generating insights for future decision- and policy making.
	An inventory of standards, processes, and ICT systems accros Higher Education (Mapping report)	HEI and EU-As leadership, ICT staff	An inventory of standards and solutions currently in use at EU-As.
	Glossary	All framework users	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.

Example: Implementation Resources

USE CASE 1

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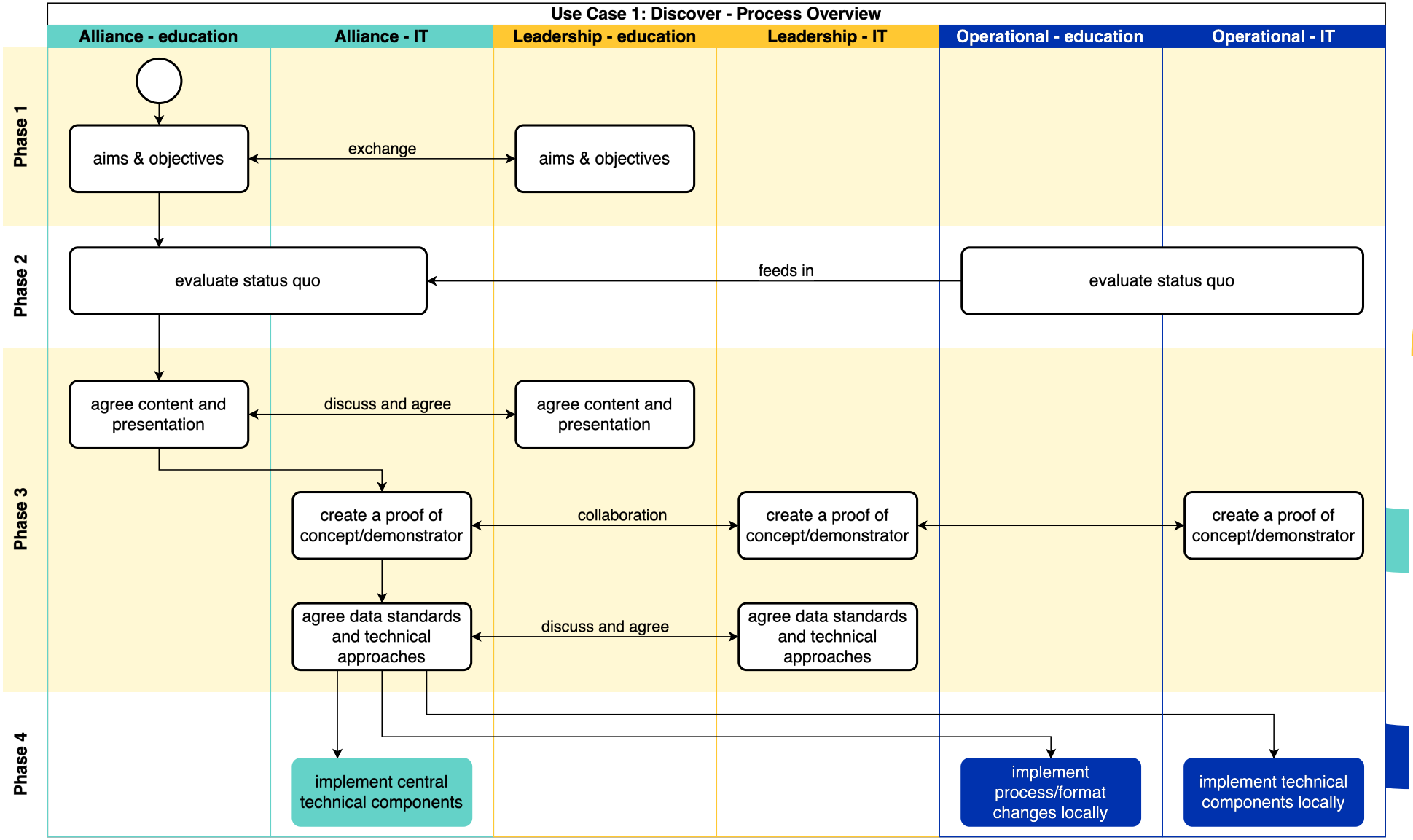
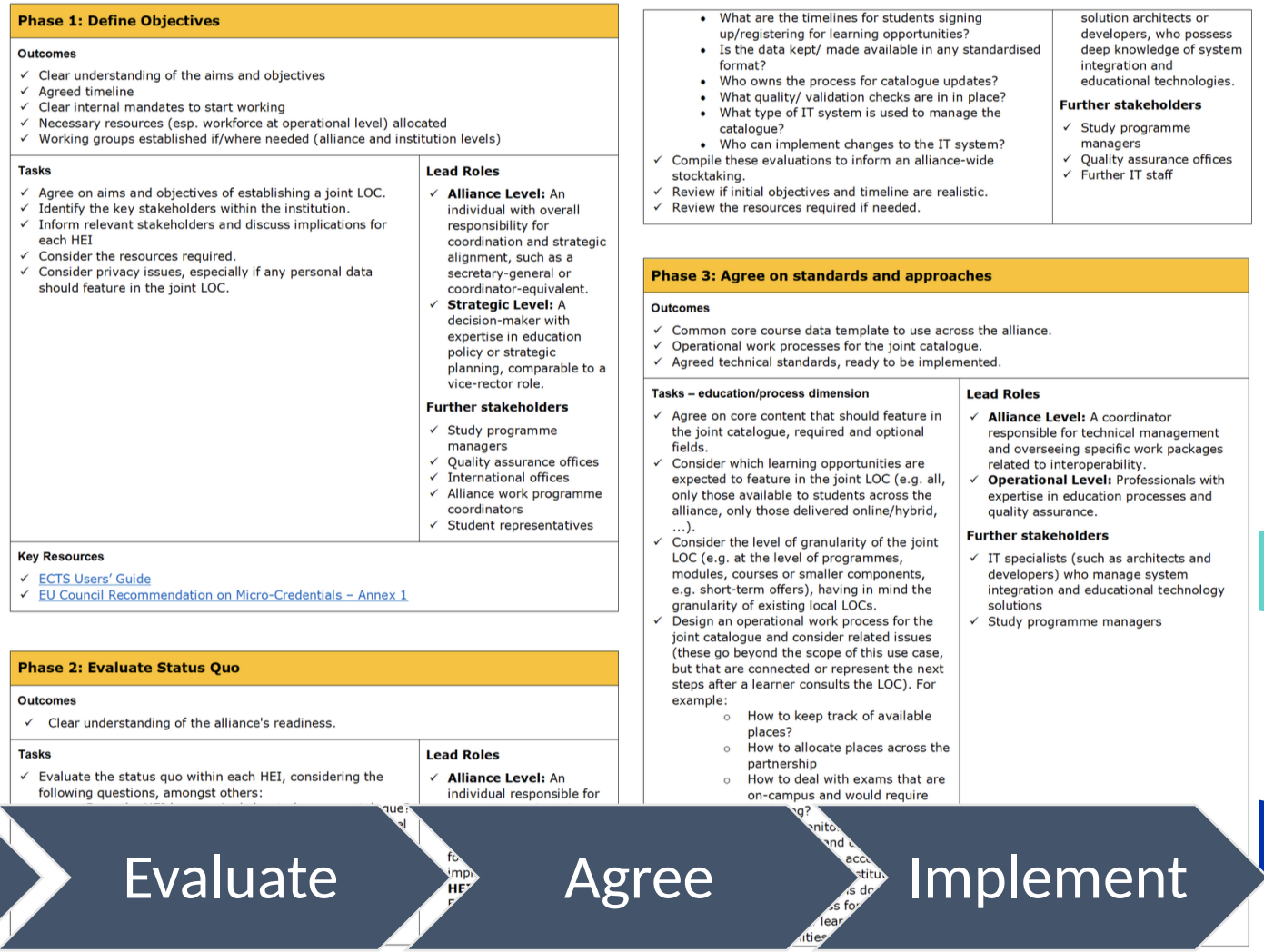
CMS (Website) | Course catalogue | Curriculum management


Use Case 1: Discover - Process Overview
Alliance - education
Alliance - IT
Leadership - education
Leadership - IT
Operational - education
Operational - IT
Phase 1
Phase 2
Phase 3
Phase 4
aims & objectives
exchange
aims & objectives
evaluate status quo
feeds in
evaluate status quo
agree content and presentation
discuss and agree
agree content and presentation
create a proof of concept/demonstrator
collaboration
create a proof of concept/demonstrator
create a proof of concept/demonstrator
agree data standards and technical approaches
discuss and agree
agree data standards and technical approaches
implement central technical components
implement process/format changes locally
implement technical components locally

What Guidance is Available

For each step:

- Outcomes
- Tasks
- Lead roles
- Further stakeholders
- Key resources



Phase 1: Define Objectives

Outcomes

- ✓ Clear understanding of the aims and objectives
- ✓ Agreed timeline
- ✓ Clear internal mandates to start working
- ✓ Necessary resources (esp. workforce at operational level) allocated
- ✓ Working groups established if/where needed (alliance and institution levels)

Tasks

- ✓ Agree on aims and objectives of establishing a joint LOC.
- ✓ Identify the key stakeholders within the institution.
- ✓ Inform relevant stakeholders and discuss implications for each HEI
- ✓ Consider the resources required.
- ✓ Consider privacy issues, especially if any personal data should feature in the joint LOC.

Lead Roles

- ✓ **Alliance Level:** An individual with overall responsibility for coordination and strategic alignment, such as a secretary-general or coordinator-equivalent.
- ✓ **Strategic Level:** A decision-maker with expertise in education policy or strategic planning, comparable to a vice-rector role.

Further stakeholders

- ✓ Study programme managers
- ✓ Quality assurance offices
- ✓ International offices
- ✓ Alliance work programme coordinators
- ✓ Student representatives

Key Resources

- ✓ ECTS Users' Guide
- ✓ EU Council Recommendation on Micro-Credentials – Annex 1

Phase 2: Evaluate Status Quo

Outcomes

- ✓ Clear understanding of the alliance's readiness.

Tasks

- ✓ Evaluate the status quo within each HEI, considering the following questions, amongst others:
  - What are the timelines for students signing up/registering for learning opportunities?
  - Is the data kept/ made available in any standardised format?
  - Who owns the process for catalogue updates?
  - What quality/ validation checks are in in place?
  - What type of IT system is used to manage the catalogue?
  - Who can implement changes to the IT system?
- ✓ Compile these evaluations to inform an alliance-wide stocktaking.
- ✓ Review if initial objectives and timeline are realistic.
- ✓ Review the resources required if needed.

Lead Roles

- ✓ **Alliance Level:** An individual responsible for

solution architects or developers, who possess deep knowledge of system integration and educational technologies.

Further stakeholders

- ✓ Study programme managers
- ✓ Quality assurance offices
- ✓ Further IT staff

Phase 3: Agree on standards and approaches

Outcomes

- ✓ Common core course data template to use across the alliance.
- ✓ Operational work processes for the joint catalogue.
- ✓ Agreed technical standards, ready to be implemented.

Tasks – education/process dimension

- ✓ Agree on core content that should feature in the joint catalogue, required and optional fields.
- ✓ Consider which learning opportunities are expected to feature in the joint LOC (e.g. all, only those available to students across the alliance, only those delivered online/hybrid, ...).
- ✓ Consider the level of granularity of the joint LOC (e.g. at the level of programmes, modules, courses or smaller components, e.g. short-term offers), having in mind the granularity of existing local LOCs.
- ✓ Design an operational work process for the joint catalogue and consider related issues (these go beyond the scope of this use case, but that are connected or represent the next steps after a learner consults the LOC). For example:
  - How to keep track of available places?
  - How to allocate places across the partnership
  - How to deal with exams that are on-campus and would require

Lead Roles

- ✓ **Alliance Level:** A coordinator responsible for technical management and overseeing specific work packages related to interoperability.
- ✓ **Operational Level:** Professionals with expertise in education processes and quality assurance.

Further stakeholders

- ✓ IT specialists (such as architects and developers) who manage system integration and educational technology solutions
- ✓ Study programme managers

Objectives → Evaluate → Agree → Implement

Example: Phase 3 – Agree on standards/approaches

Key Resources

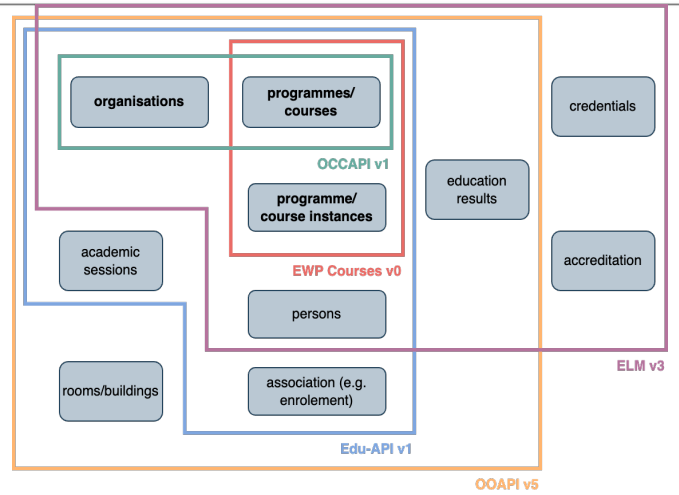
There are several European standards related to this use case, all of which cover course data/catalogues in some way:

- European Learning Model (ELM)
- Open Education API (OOAPI)
- ELMO
- EWP Courses API
- Open Course Catalogue API (OCCAPI)
- Edu-API

The illustration below shows what other domains than courses and programmes are covered by different existing standards. These differences stem from the fact that these different standards – or the ecosystems within which they emerged – were designed for different general/broader use cases or purposes. Depending on other use cases the alliance is currently addressing, considering these different scopes can help identify the most suitable standards.

Further details can be found in the mapping report as well as these existing mappings of ontologies and data standards:

- QualityLink mapping of ontologies
- Data Ecosystem Schema Mapper (DESM)



Ongoing Work on Interoperability in EDEH

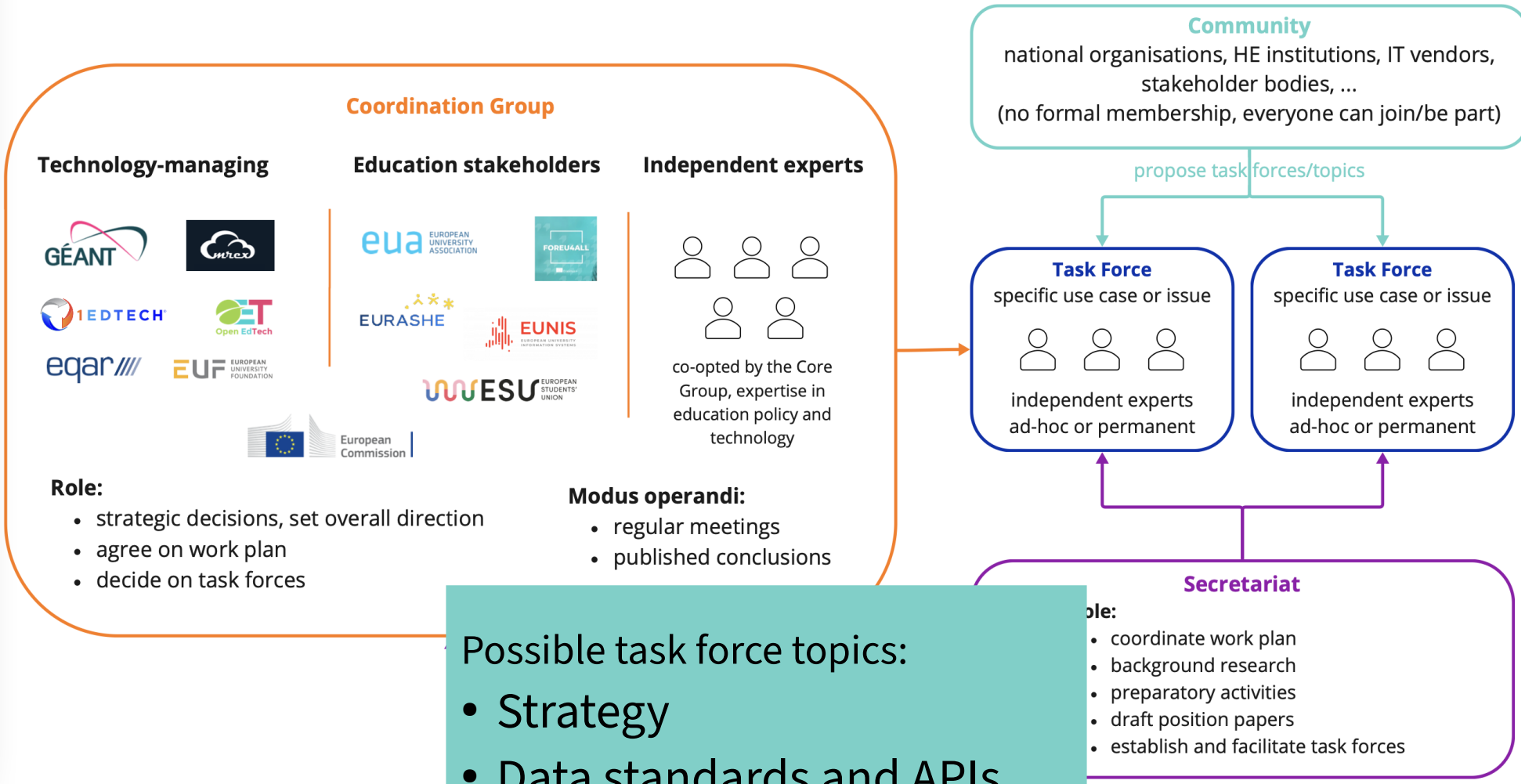
Priorities:

Provide a dedicated community platform: working group open to everyone with interest in HE interoperability, webinars, community conference, ...

Facilitate the use of the Framework: onboarding and Q&A sessions, video tutorials, MOOCs, dissemination activities, early adopters programme, ...

Coordinate policies and standards: facilitate collaboration between stakeholders, establish task forces, provide recommendations, ...

Stakeholder Coordination and Task Forces



Possible task force topics:

- Strategy
- Data standards and APIs
- User identity

Some Lessons Learned

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

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

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

European Commission

Thank you for your attention!

Join the working group:
https://europa.eu/!mFpTHh

Contact:
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