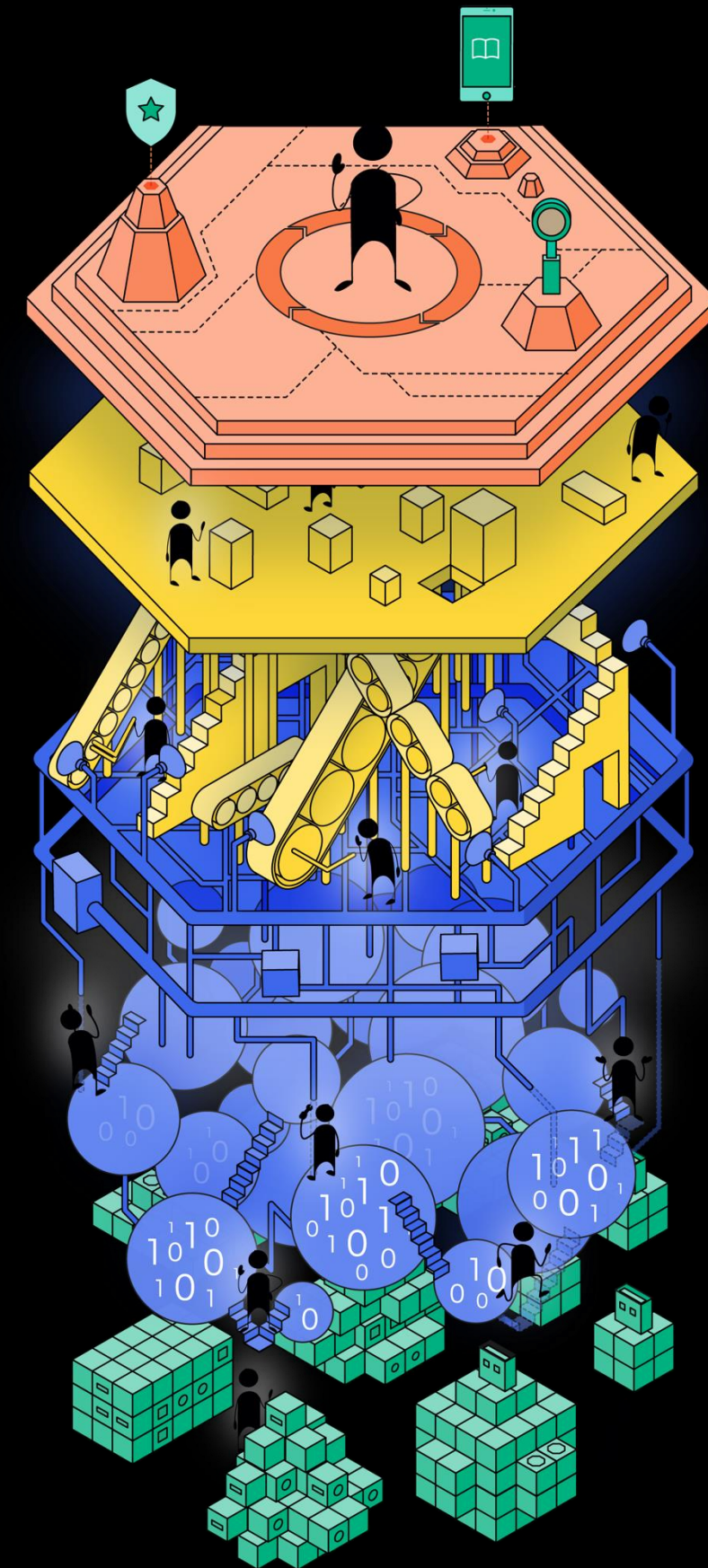


NORDUnet · 10 September 2026

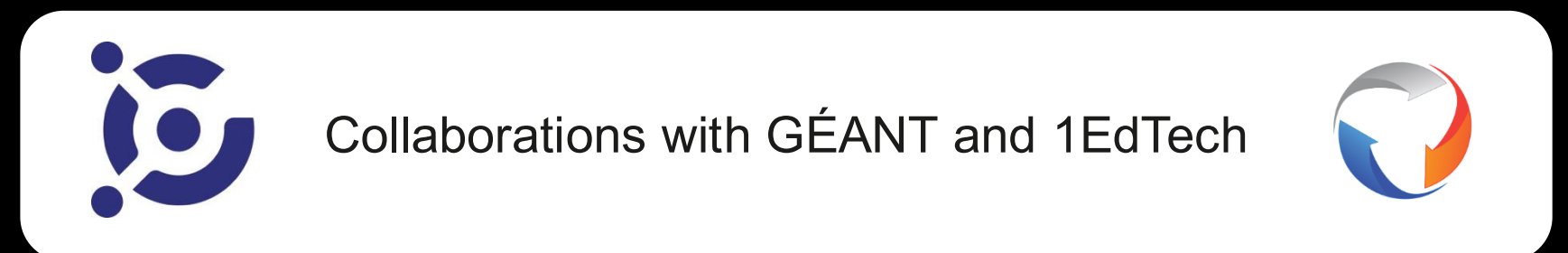
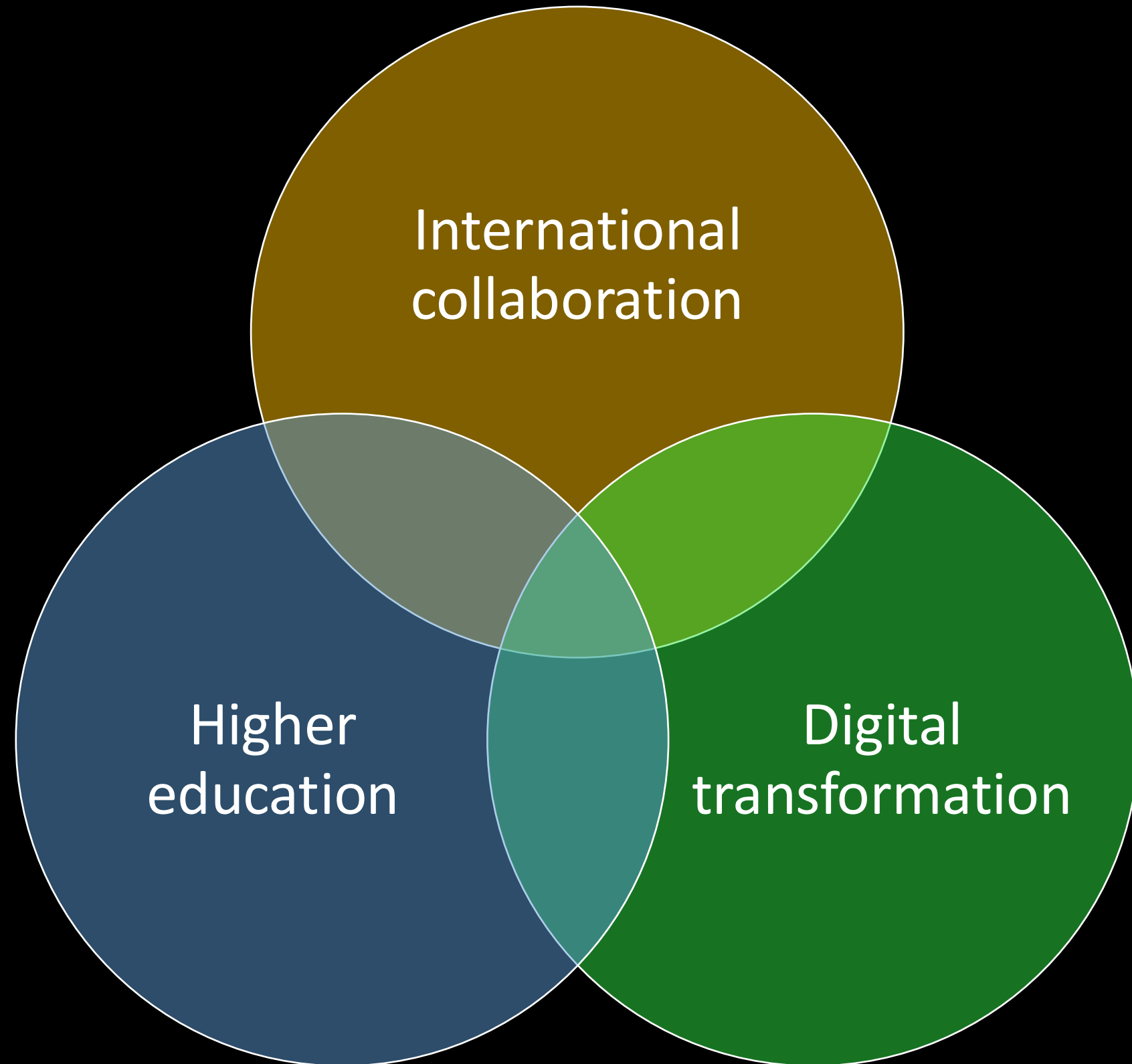
European interoperability, and where your NREN sits in it

Course data that moves, identities that travel, credentials recognised across the border.

Evelien Renders · SURF · EUNIS



Several hats, one topic



Four areas of digitalisation in education

Teaching students about digitalisation (content)

- Digital literacy, research with databases, AI, ...

Delivering teaching in a digital way (delivery)

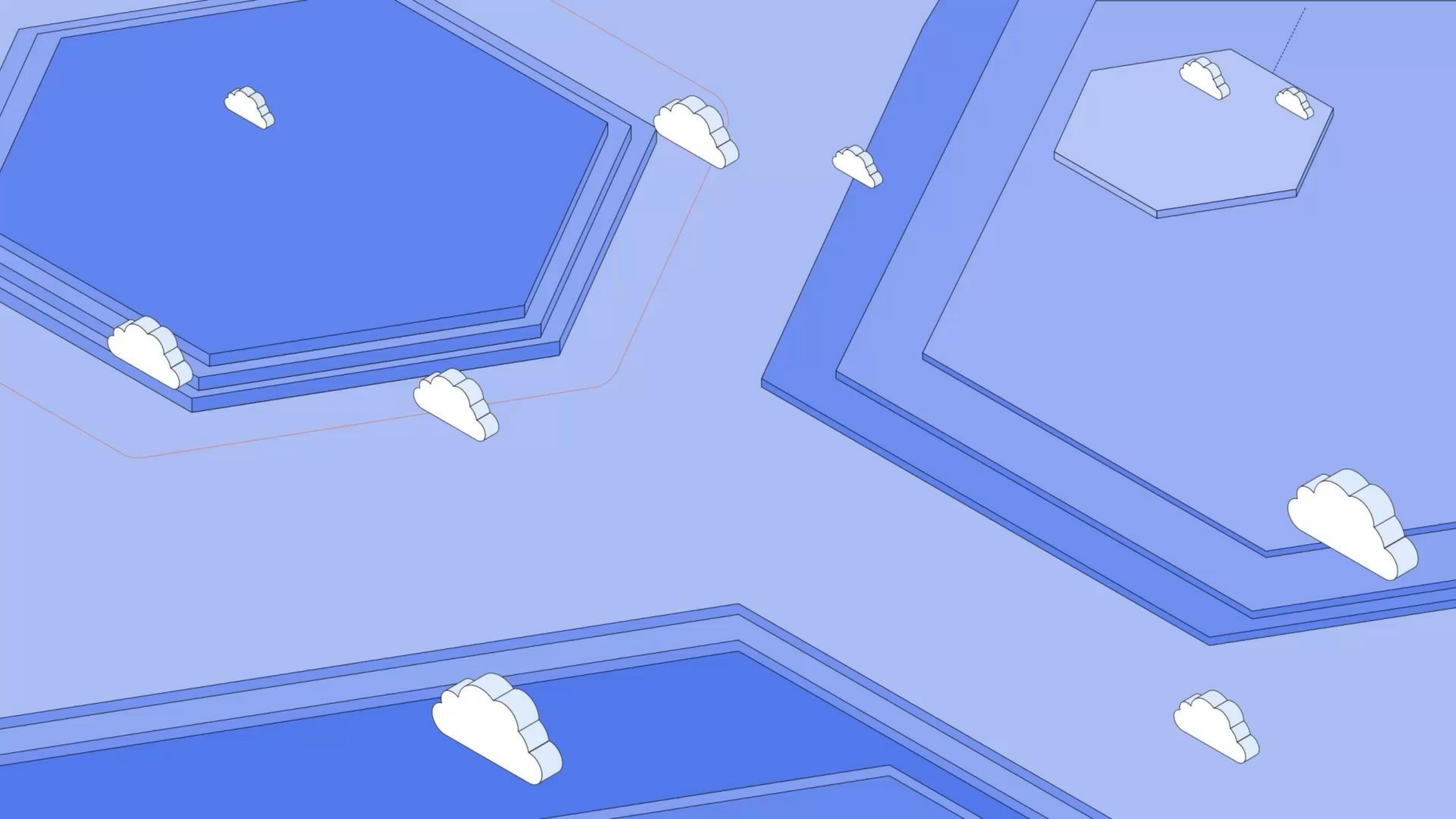
- Blended, virtual/hybrid classroom, videos, flipped classroom, LMS, ...

Facilitating teachers by support staff (education logistics)

- Rostering, course creation, enrollment, assessment, accreditation, SIS, ...

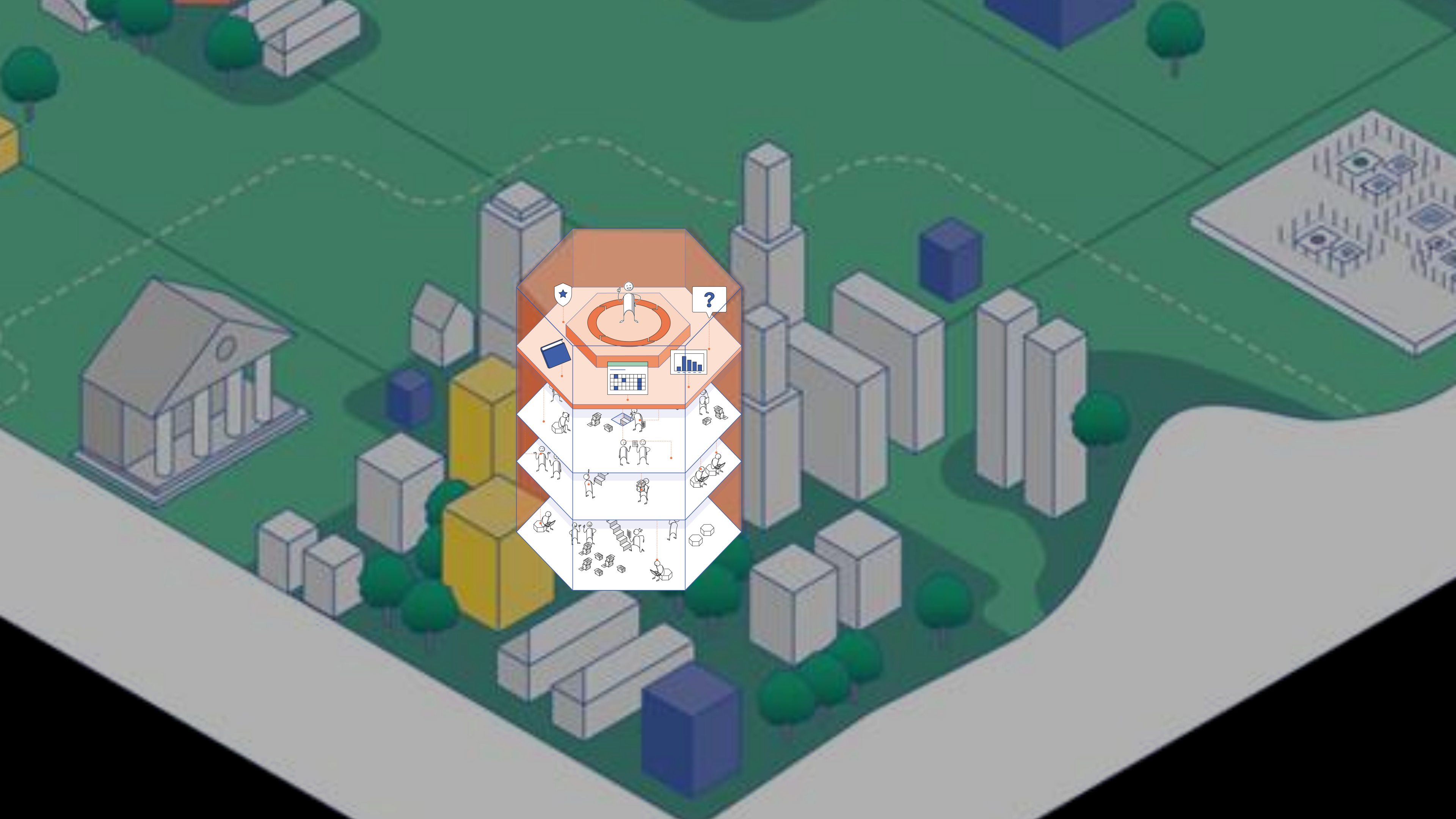
General business processes (organisational)

- e.g. HR, Finance, communication, ...

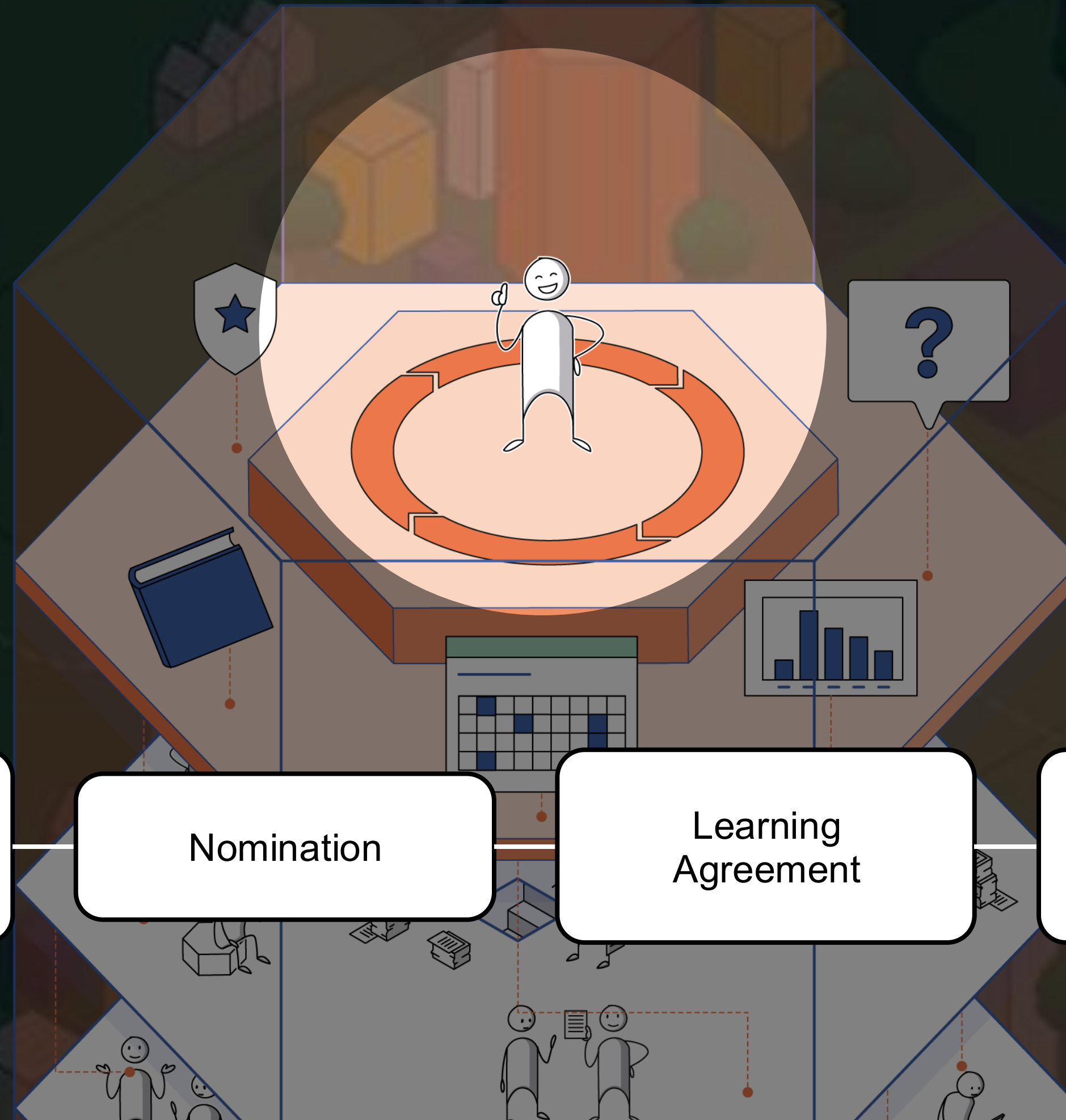










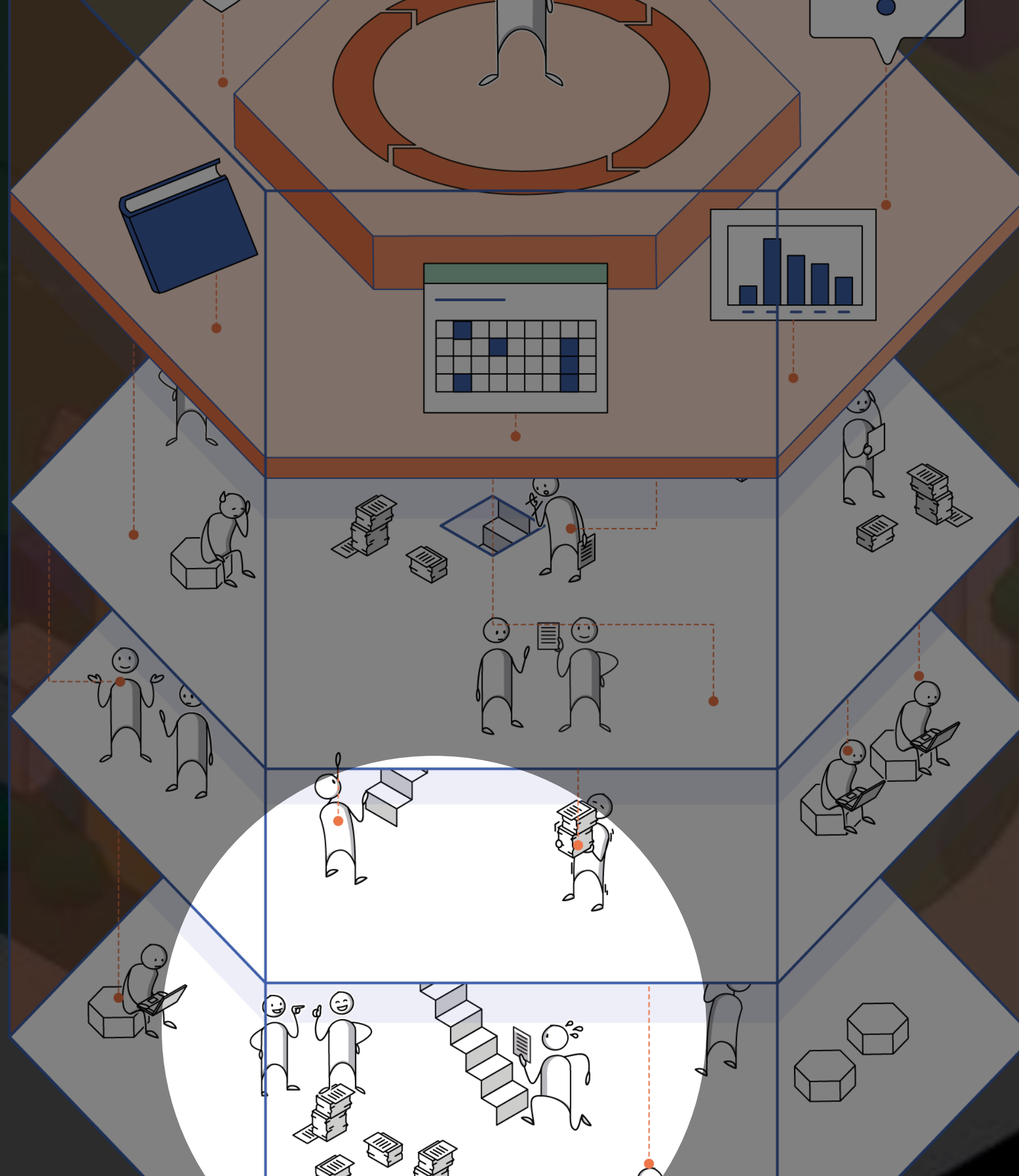


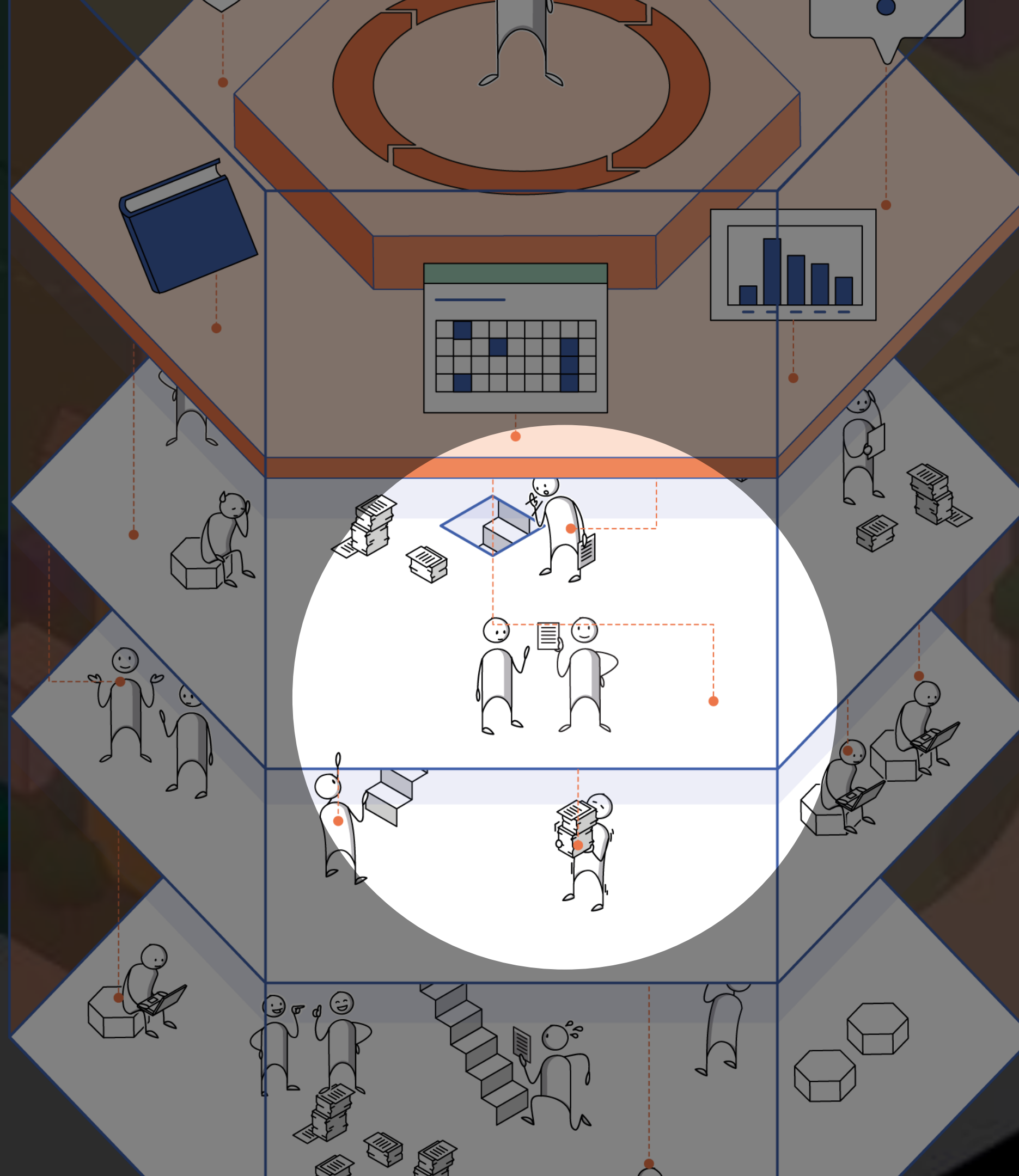
Inter-Institutional
Agreement

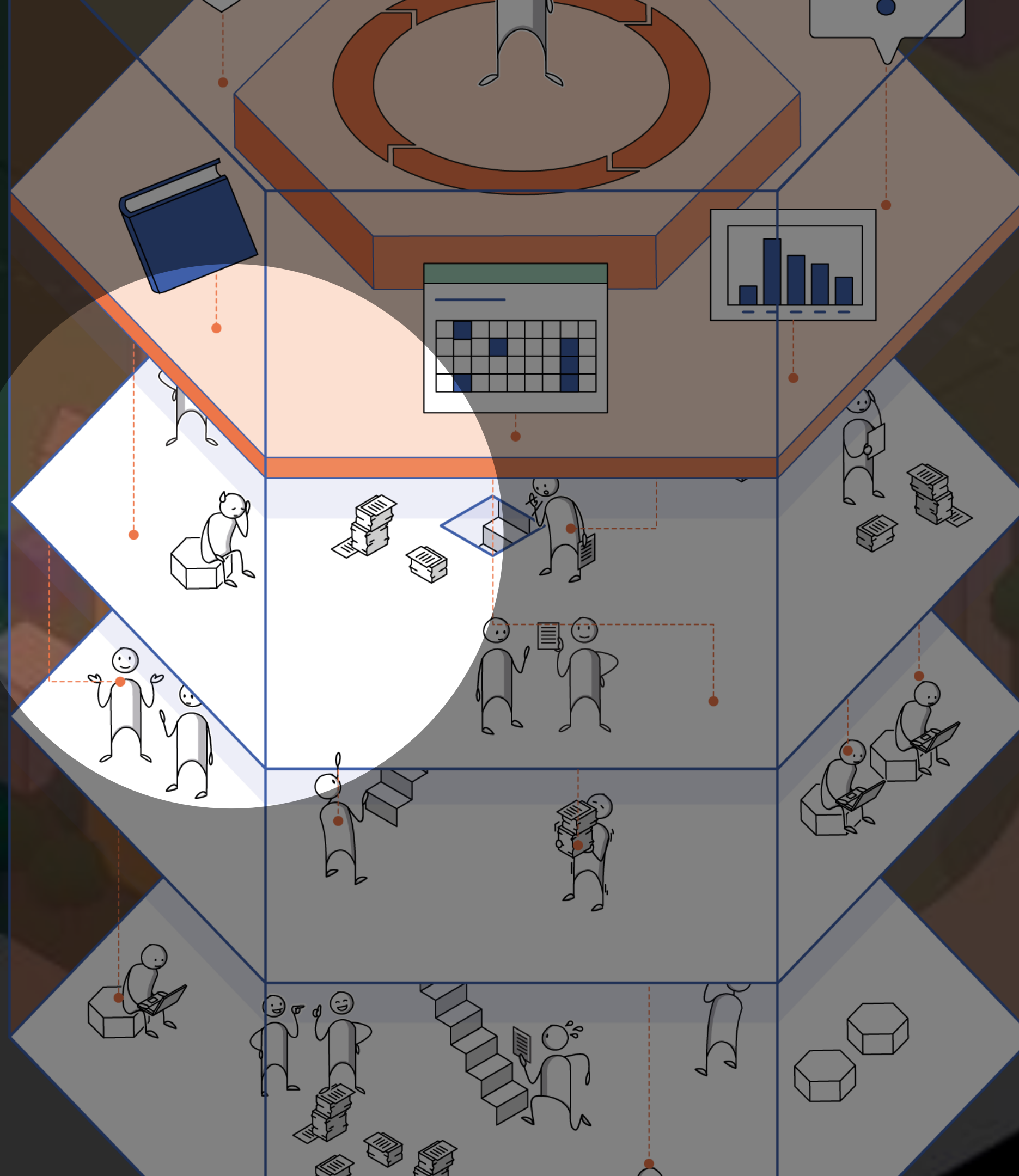
Nomination

Learning
Agreement

Transcript of
Records





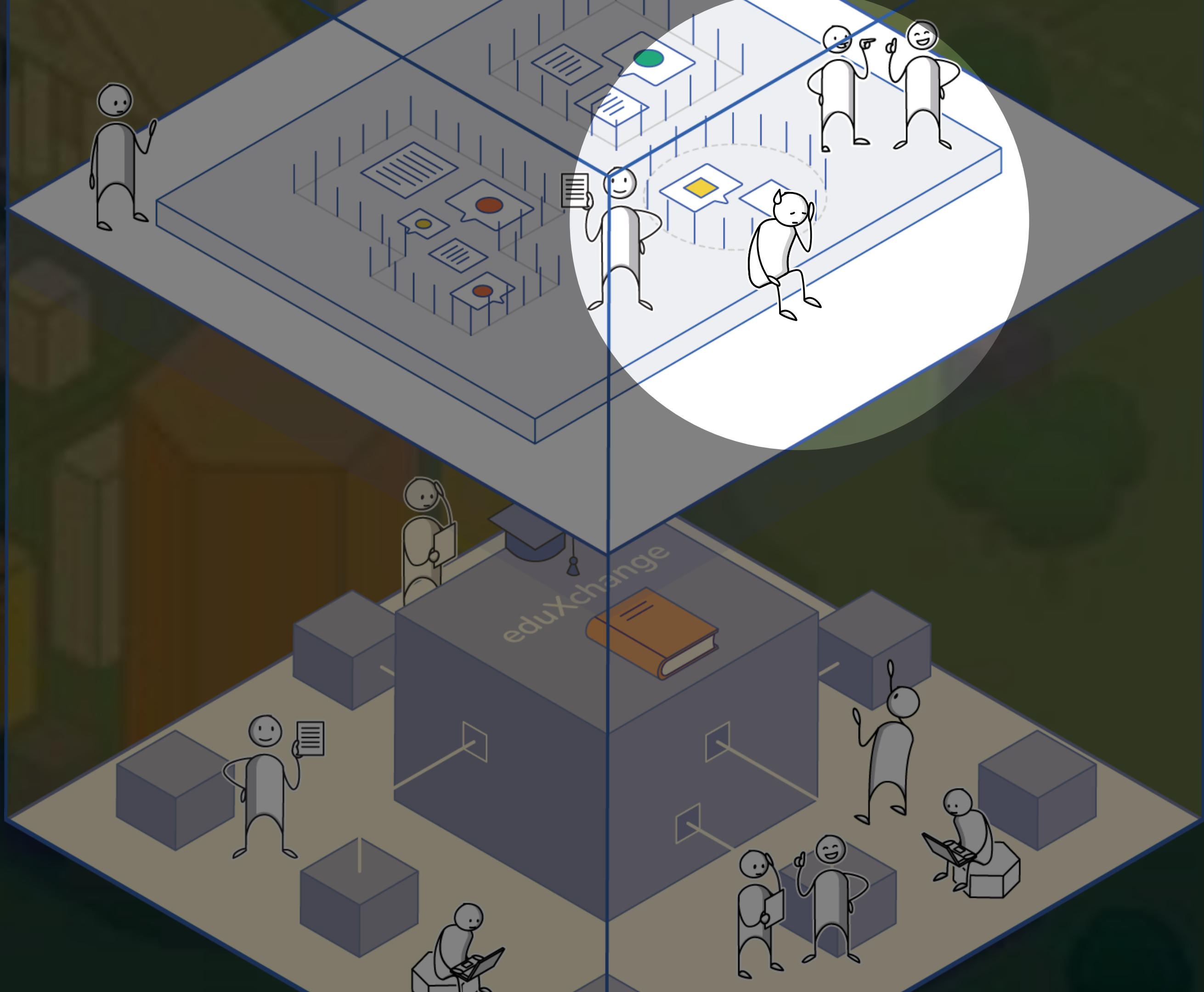


















Why?



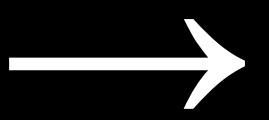
“This is not only leading to a substantial increase in the workload of staff supporting student exchanges, but also directly impacting our students.”

Una Europa, UNITE!, ECIU University, EU-CONEXUS and EC2U

Joint Position Paper on Erasmus without Paper, 15 December 2021



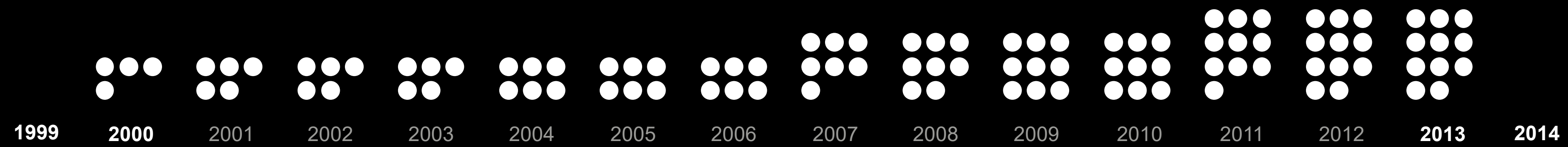
3,200



108,000

higher-education students on Erasmus exchange a year, 1987 to 1999.

One dot is 25,000 students in a year.



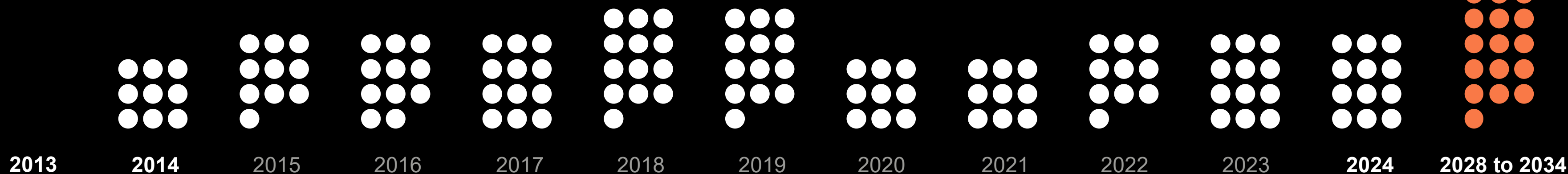
111,000



272,000

students a year, 2000 to 2013. Three million in total by 2013.

One dot is 25,000 students in a year.



~1.4M a year

if the 73 alliances get half of their 11 million students mobile once in a four-year degree: short, blended and virtual.

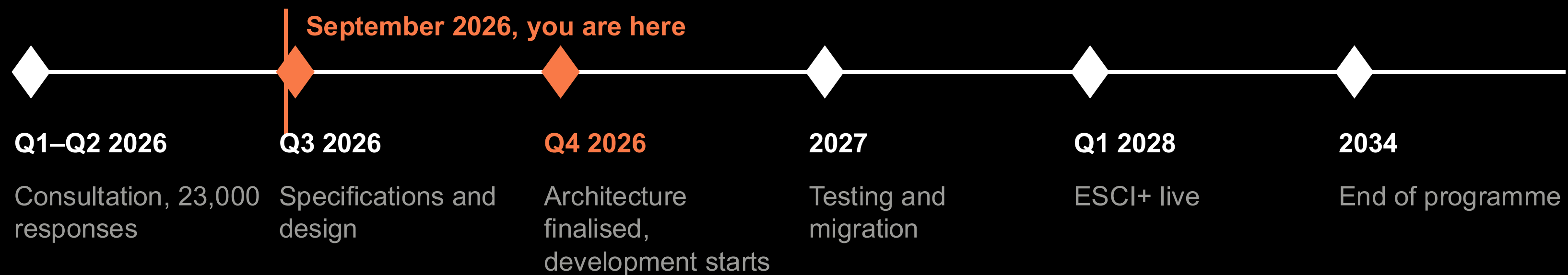


“Often, the issues were not of a technical nature,
so they are not going to be solved with a
technical solution.”

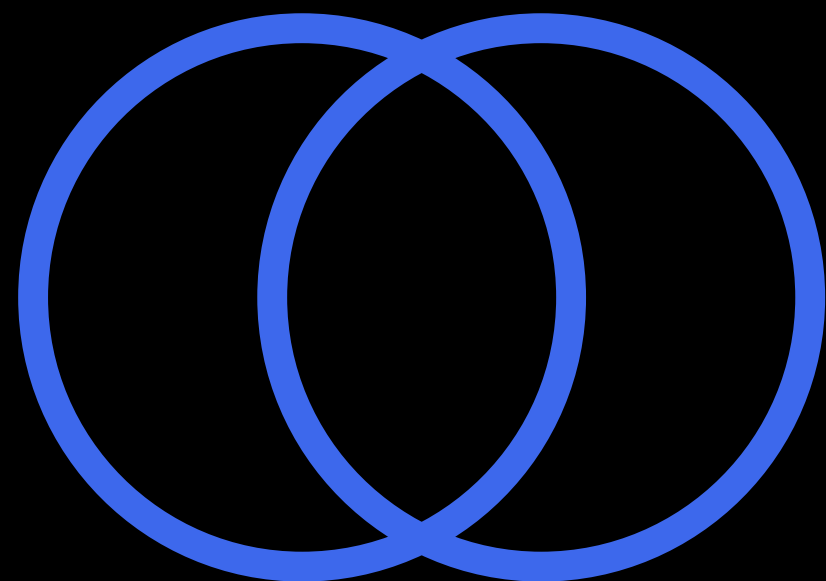
Martin Charlier, Lund University

Interview February 2022, ESCI community story, published 20 June 2025

What we make in **Q4 2026 & Q1&2 2027** runs until 2034.

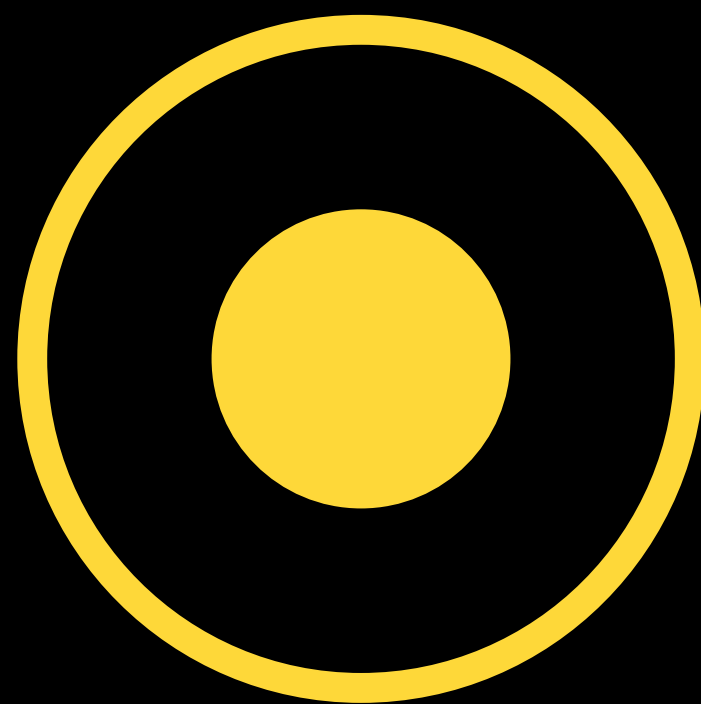


_____ FIM4E position paper: v1.0 to the community November 2026,
to the EC Publications Office early 2027



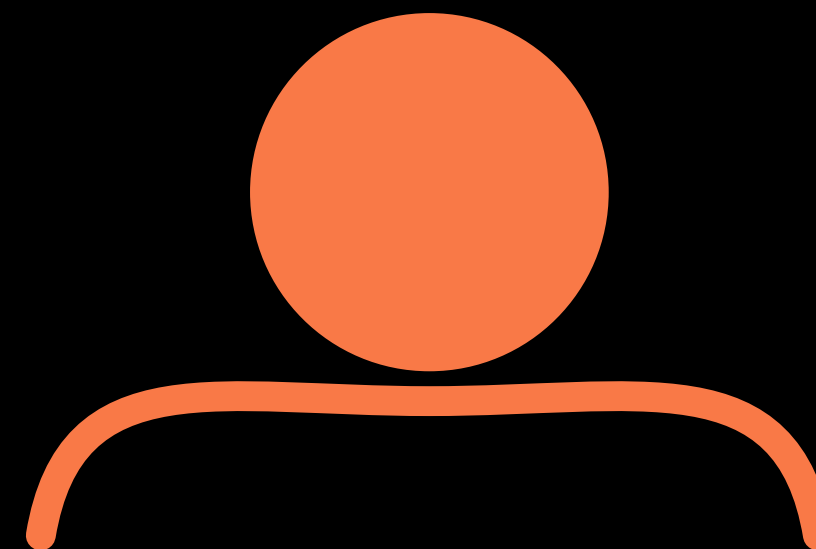
Understood

**I know what
you mean.**



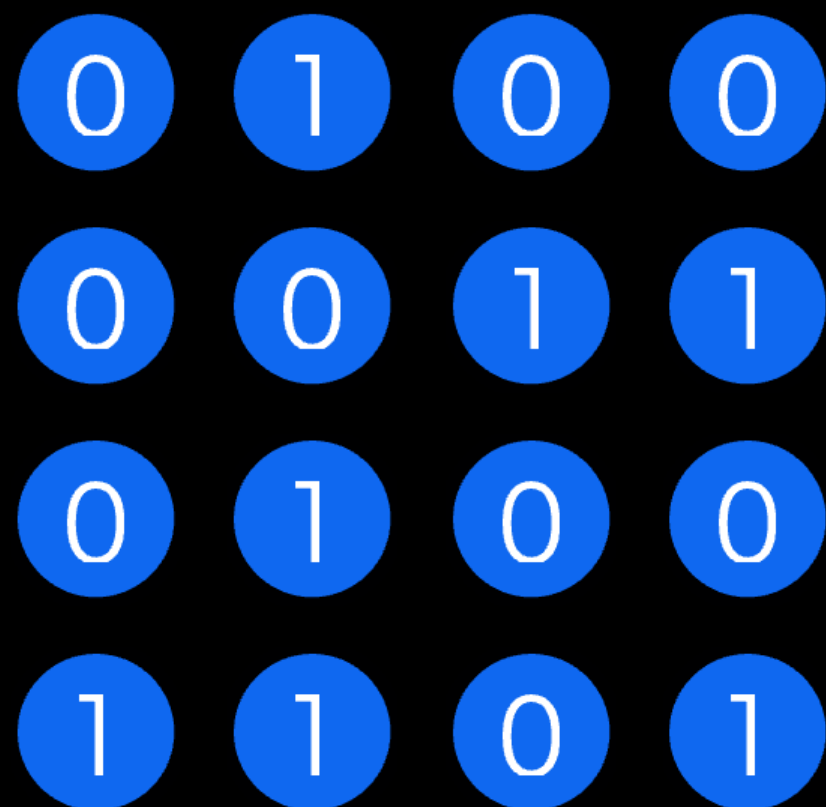
Validated

**You belong
here.**



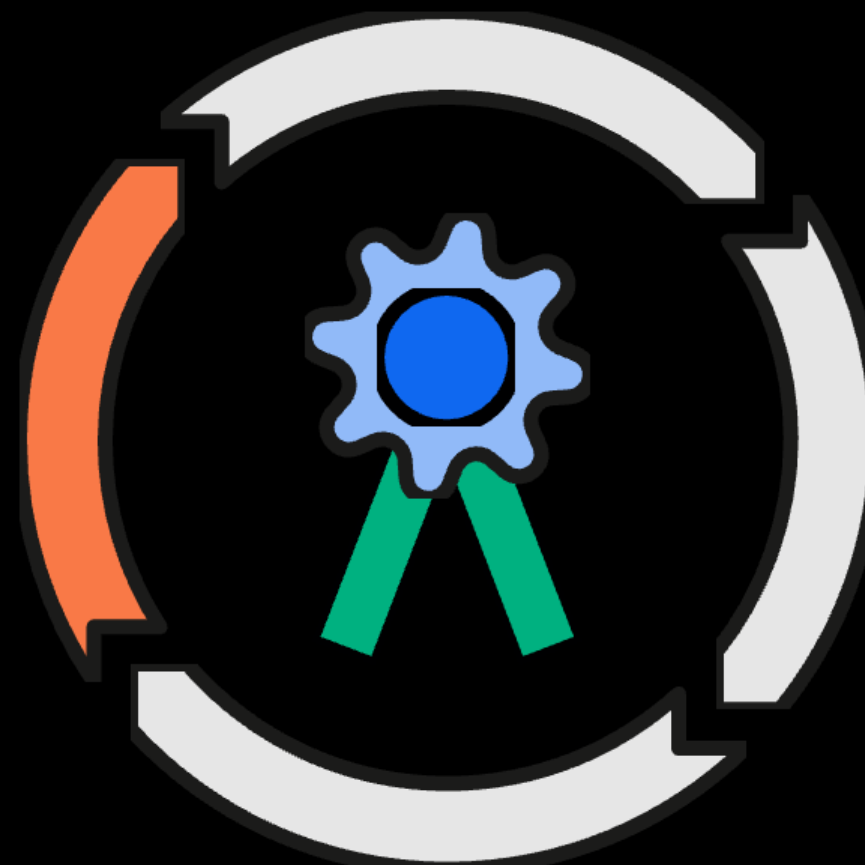
Supported

I've got you.



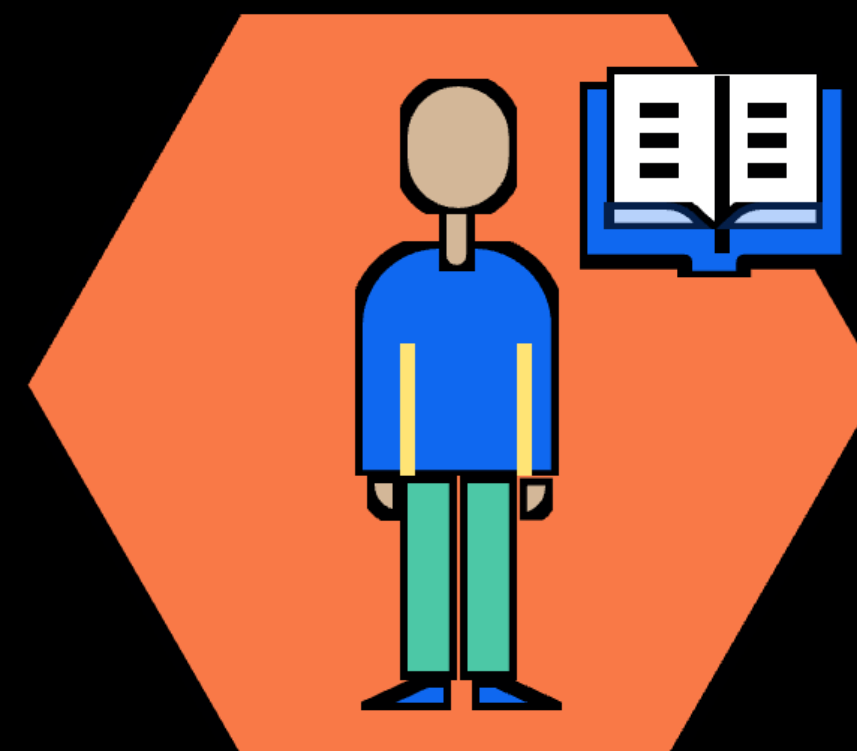
Understood

**I know what
you mean.**



Validated

**You belong
here.**



Supported

I've got you.

What already exists

A journey through the European policy, frameworks and architecture already in place.



The European policy layer is crowded



■ **Higher education (EAC.B.1)**
European Union > European Commission > Directorate-General for Education, Youth, Sport and Culture > Youth, Education and Erasmus+ > Higher education (EAC.B.1)
Head of Unit: Ms Susanne CONZE



■ **Digital Education (EAC.C.4)**
European Union > European Commission > Directorate-General for Education, Youth, Sport and Culture > Deputy Director-General, in charge of Directorates C and D > Innovation, Digital Education and International Cooperation > Digital Education (EAC.C.4)
Head of Unit: Mr Georgi DIMITROV



■ **Interoperability and Digital Government (DIGIT.B.2)**
European Union > European Commission > Directorate-General for Digital Services > Deputy Director-General in charge of Directorates B and C > Digital Enablers & Innovation > Interoperability and Digital Government (DIGIT.B.2)
Head of Unit: Ms Leontina SANDU



■ **Vocational Education and Training, Skills Portability, CEDEFOP (EMPL.B.3)**
European Union > European Commission > Directorate-General for Employment, Social Affairs and Inclusion > Deputy Director-General - Jobs, Skills and Social Policies > Jobs and Skills > Vocational Education and Training, Skills Portability, CEDEFOP (EMPL.B.3)
Head of Unit: Ms Anna BANCZYK

European Digital Education Hub

Erasmus+

Erasmus Without Paper

European University Alliances

European Learning Model

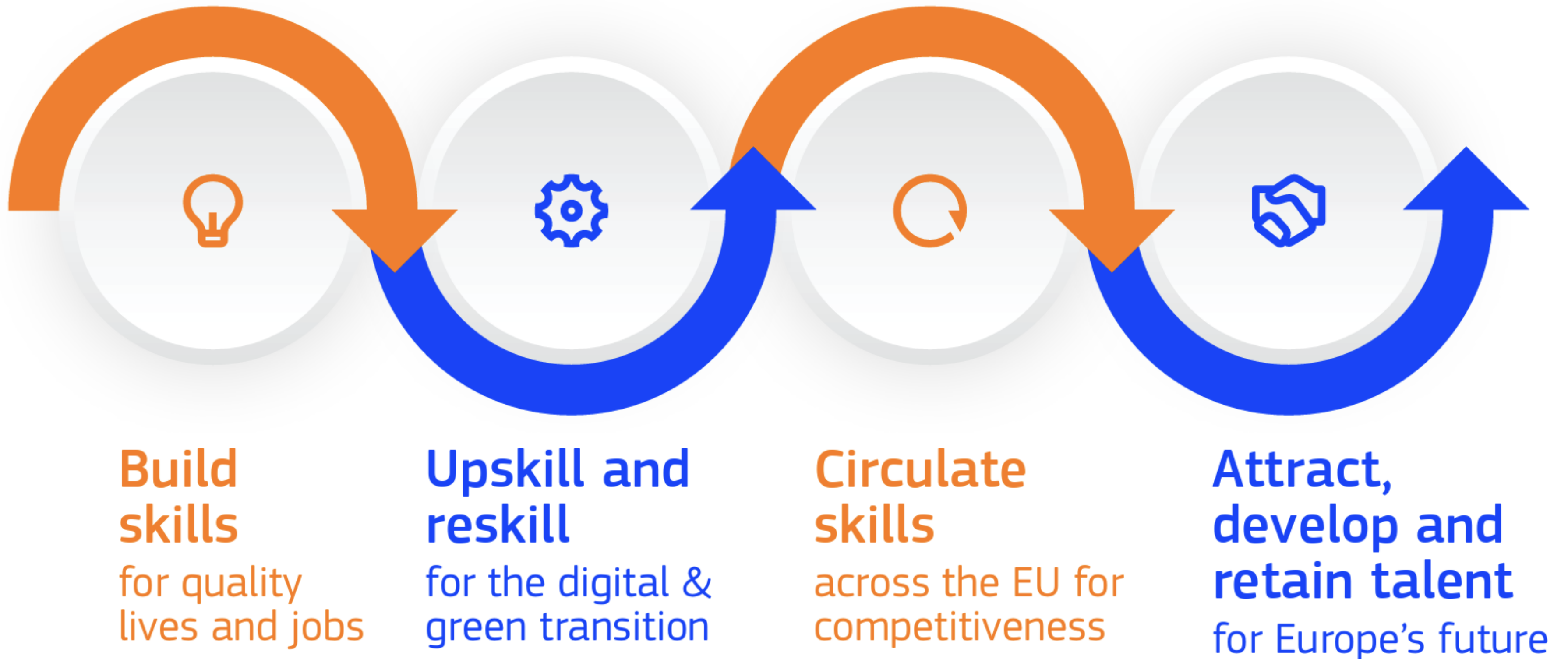
Europass

EIRA reference architecture

EIF interoperability framework

Interoperable Europe Act

To achieve this, the Union of Skills sets out a plan to:



COMPETITIVENESS COMPASS



How many times mentioned:

Universities: 3 times
Education: 4 times
Research: 19 times
Skills: 27 times
Companies: 40 times
Industry: 70 times

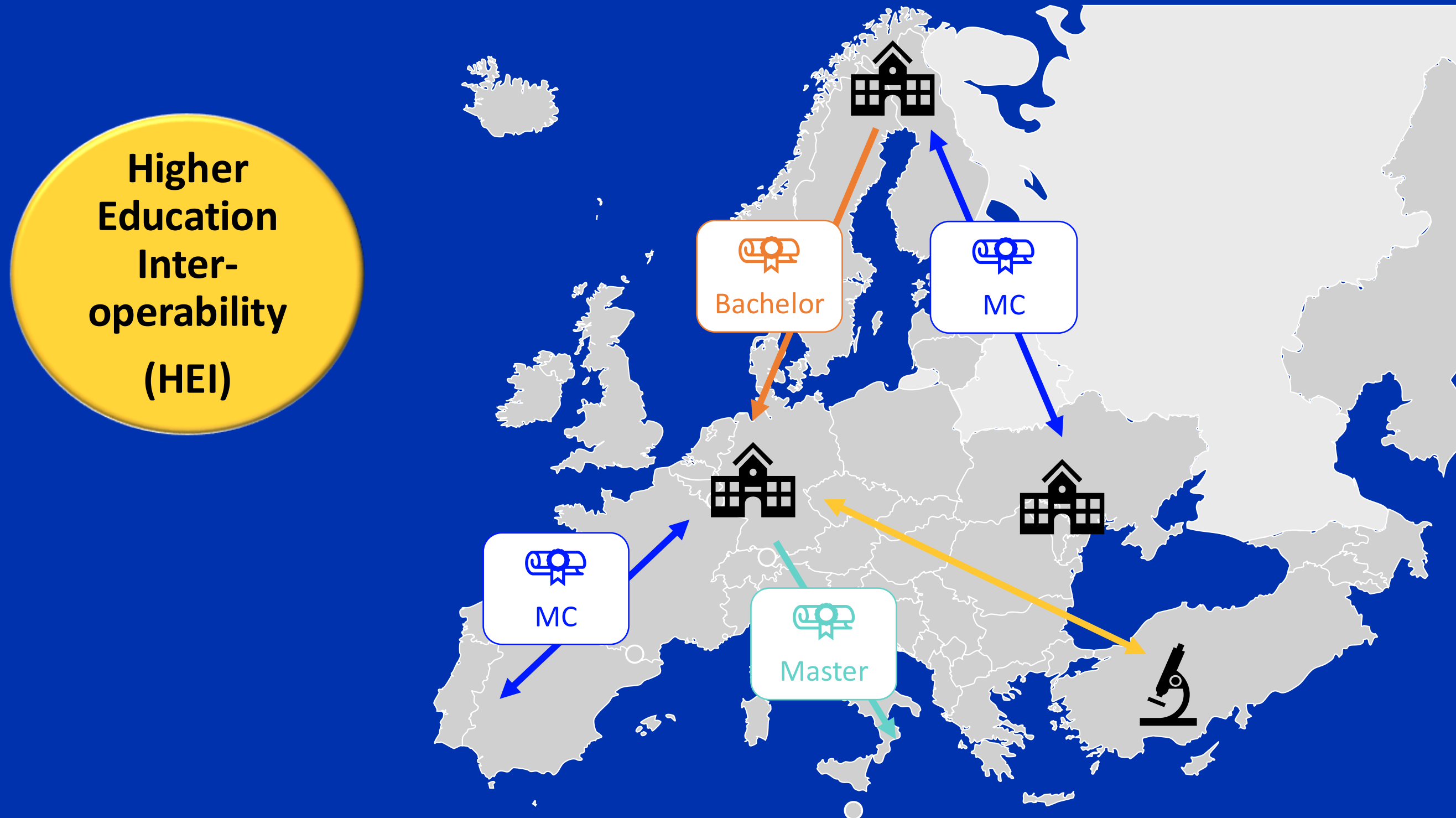
HE Interoperability Workgroup

October 2025

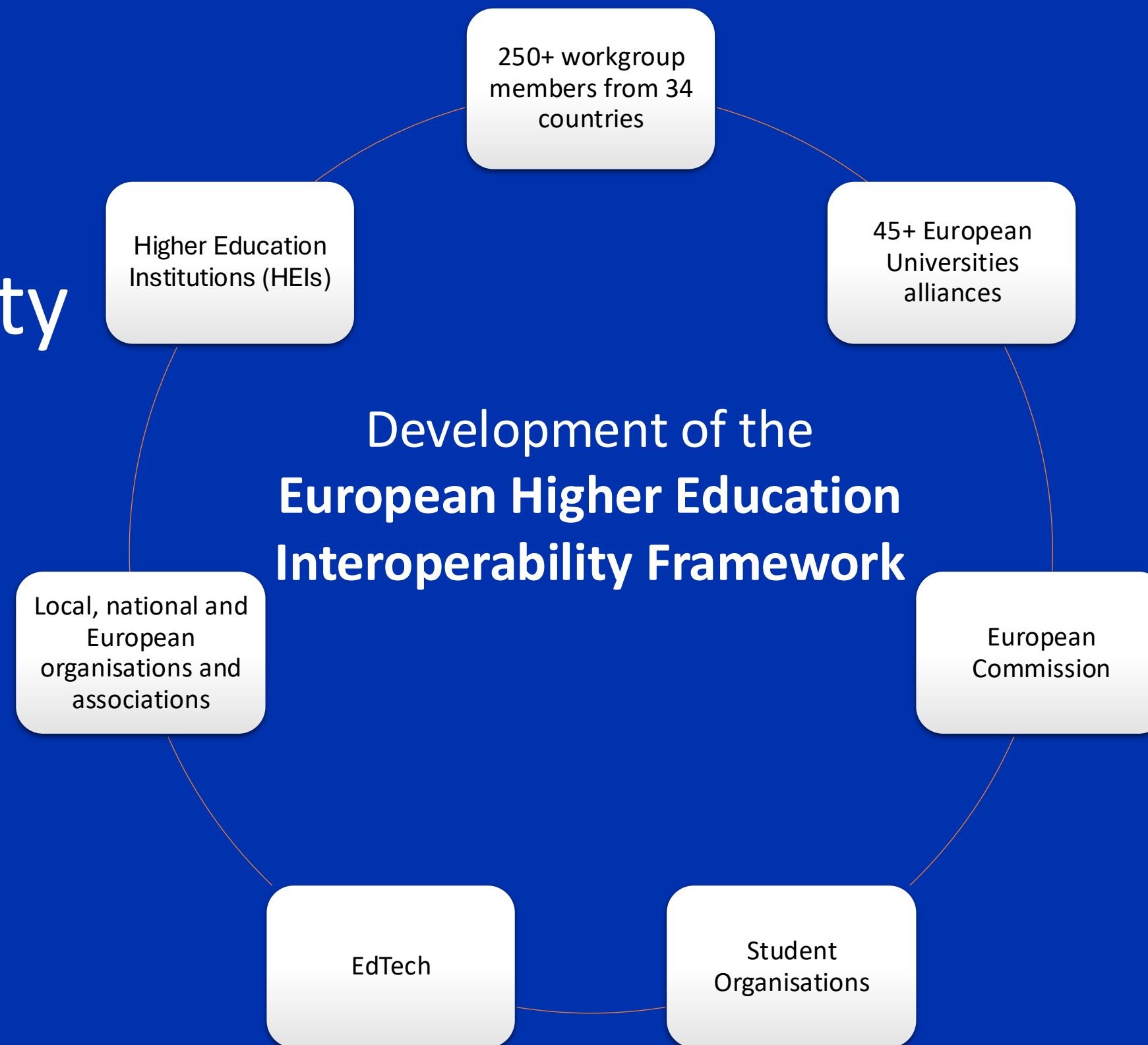
EUROPEAN
DIGITAL
EDUCATION
HUB



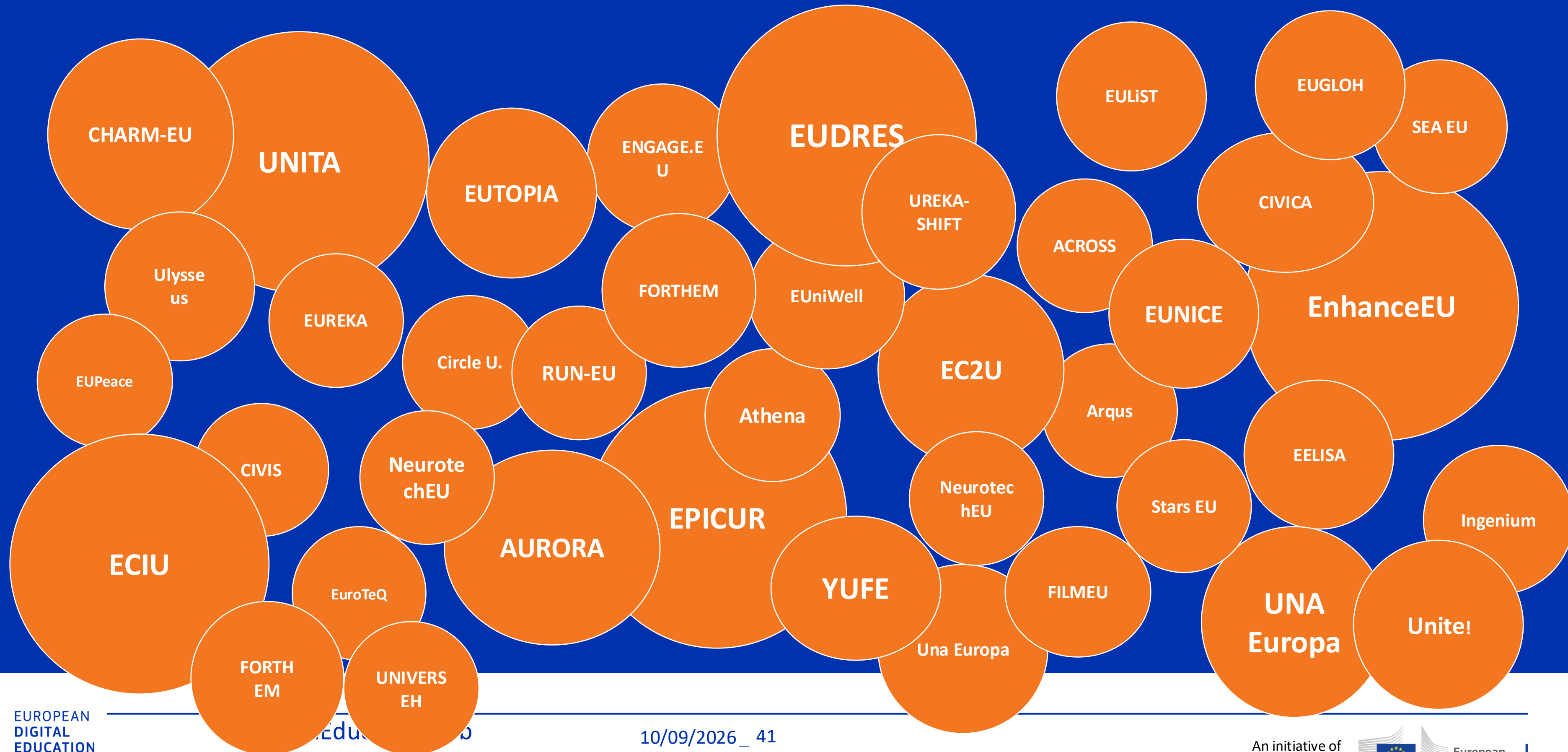
Our goal: **Strengthen joint education efforts in the EU by enabling the secure and seamless sharing of educational data and information**



Higher Education Interoperability Workgroup



Over 45 alliances involved in the WG



Development of the Higher Education Interoperability Framework



September 2023

Core Expert Group

- 20 experts in the field of higher education policy and operations
- Initial drafting of the use cases and the basis for the reference architecture

2023 - 2024

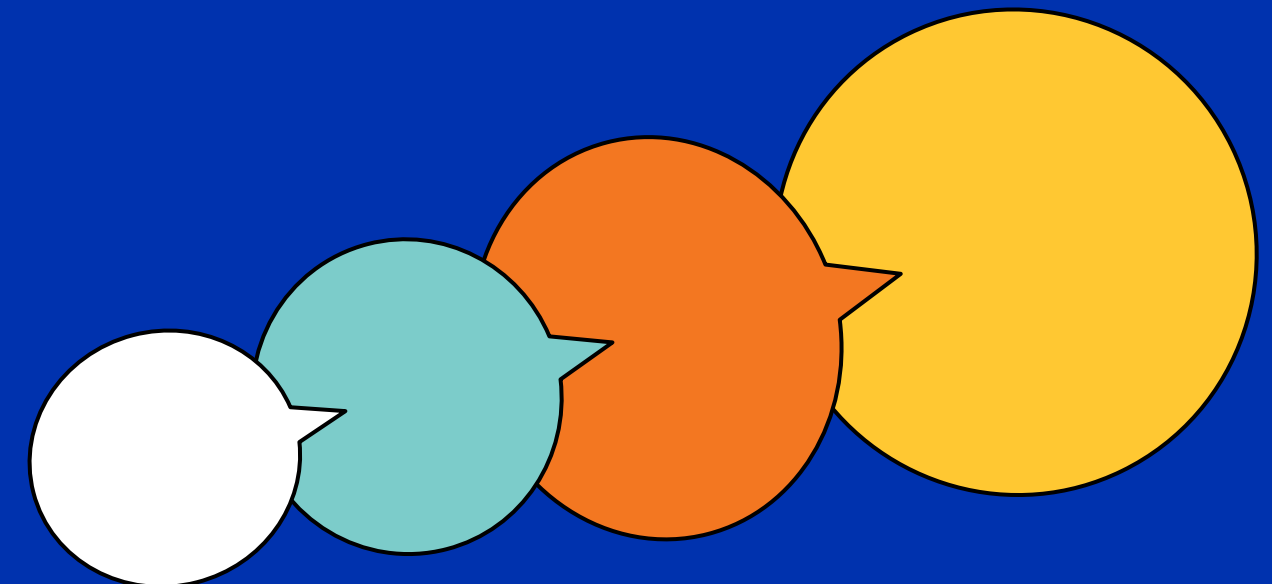
Higher Education Interoperability Workgroup

- 240+ practitioners from HEIs, alliances, national and European organisations
- Developing the full framework
- Series of 8 use case squads
- Several online and in-person workshops

2025

Framework Launch

- Launch event
- Publication of framework report and resources



Identified Use Cases 1-4

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

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

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



Identified Use Cases 5-8

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 6

Earn a credential



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

- Micro-credentials
- Portable credentials

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

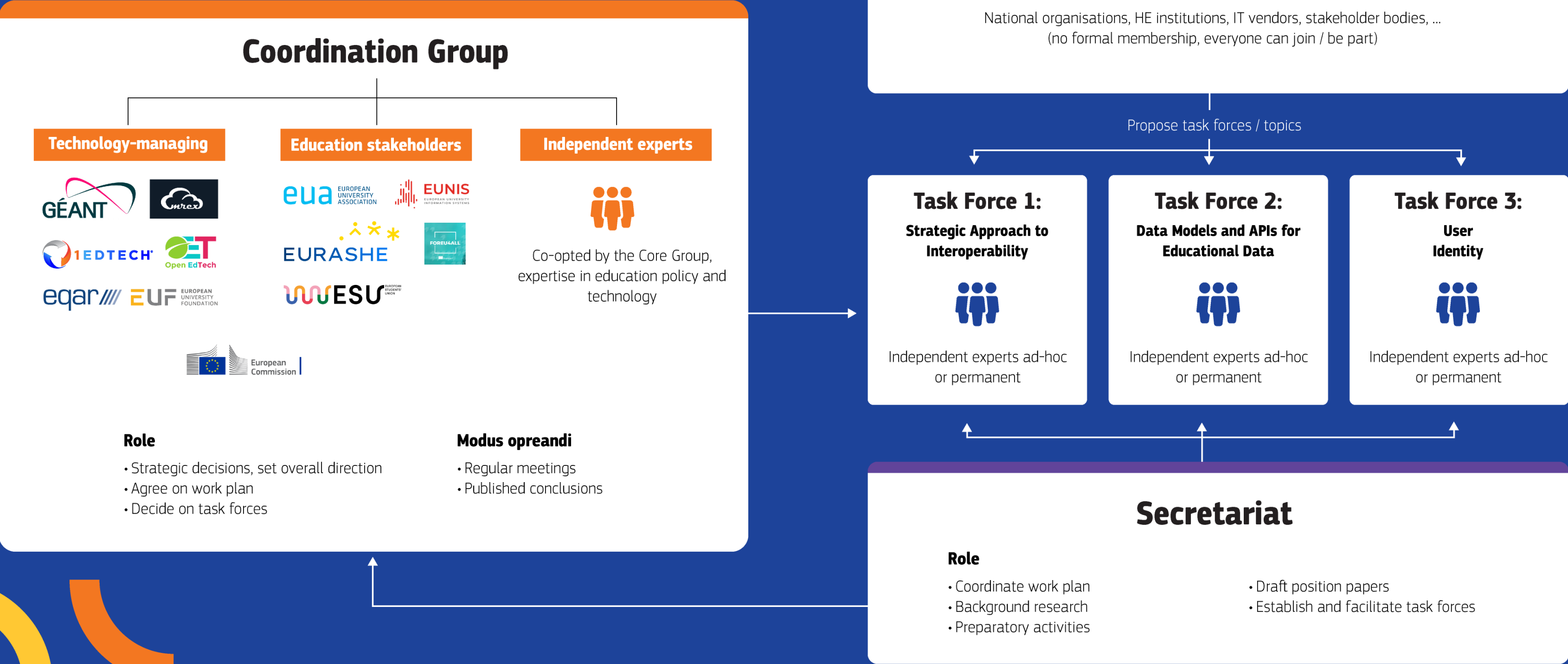


Developing a cohesive framework for trusted institutional identities, facilitating smoother collaborations and exchanges between HEIs.

- Accreditation
- Ranking

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



Resources and support

Access to framework documentation and related materials

1. Framework webpage

[Link not ready yet](#)

- You can find everything you need to know about HEI and the framework on the framework website. This includes information about our goals, as well as the framework's contents, activities and current developments. You can use this page to keep up to date on all HEI related issues. For now, access and share information about the workgroup at the [EEA portal here](#).

2. Publications Office

[Link](#)

- Find the latest publications from the European Union here. Select a subject to find more information on topics such as the HEI and the Hub.

3. Working Group channel on MS Teams

[Link](#)

- The 'Working Group on HEI' is the channel where you can find the latest information and updates on our ongoing work. You are more than welcome to comment, share your expertise and contribute your views and ideas.

Publications Office

Search results - Publications Office of the EU



European higher education interoperability framework



European higher education interoperability framework: Implementation Framework



An inventory of standards, processes, and ICT systems across higher education (mapping report)



An analysis of the state of interoperability across higher education systems in Europe (synthesis report)



Publications Office

Search results - Publications Office of the EU



Proposal for a multi-stakeholder coordination group on European higher education interoperability



Blueprint reference architecture



Manifesto: Bridging boundaries



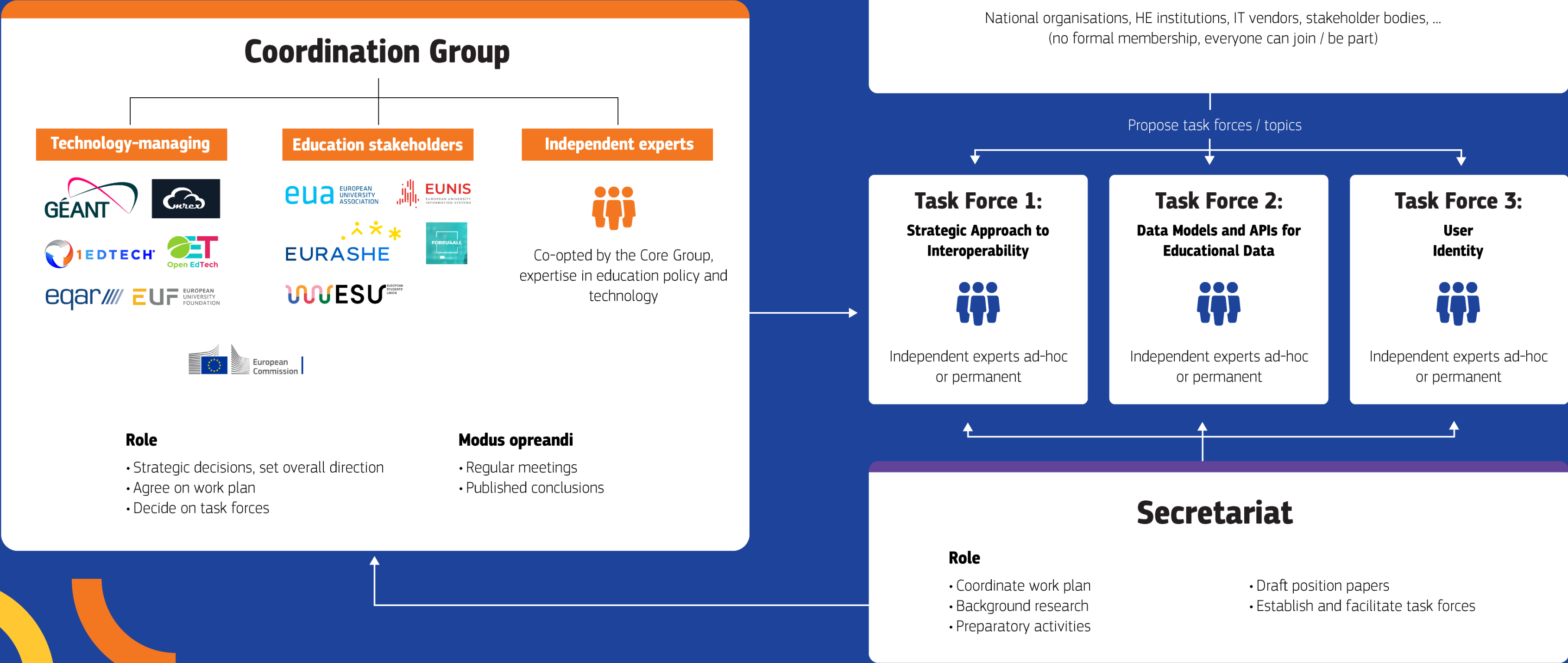
Glossary



EDEH coordinates the follow-up as a network of networks

Coordination Group Structure

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



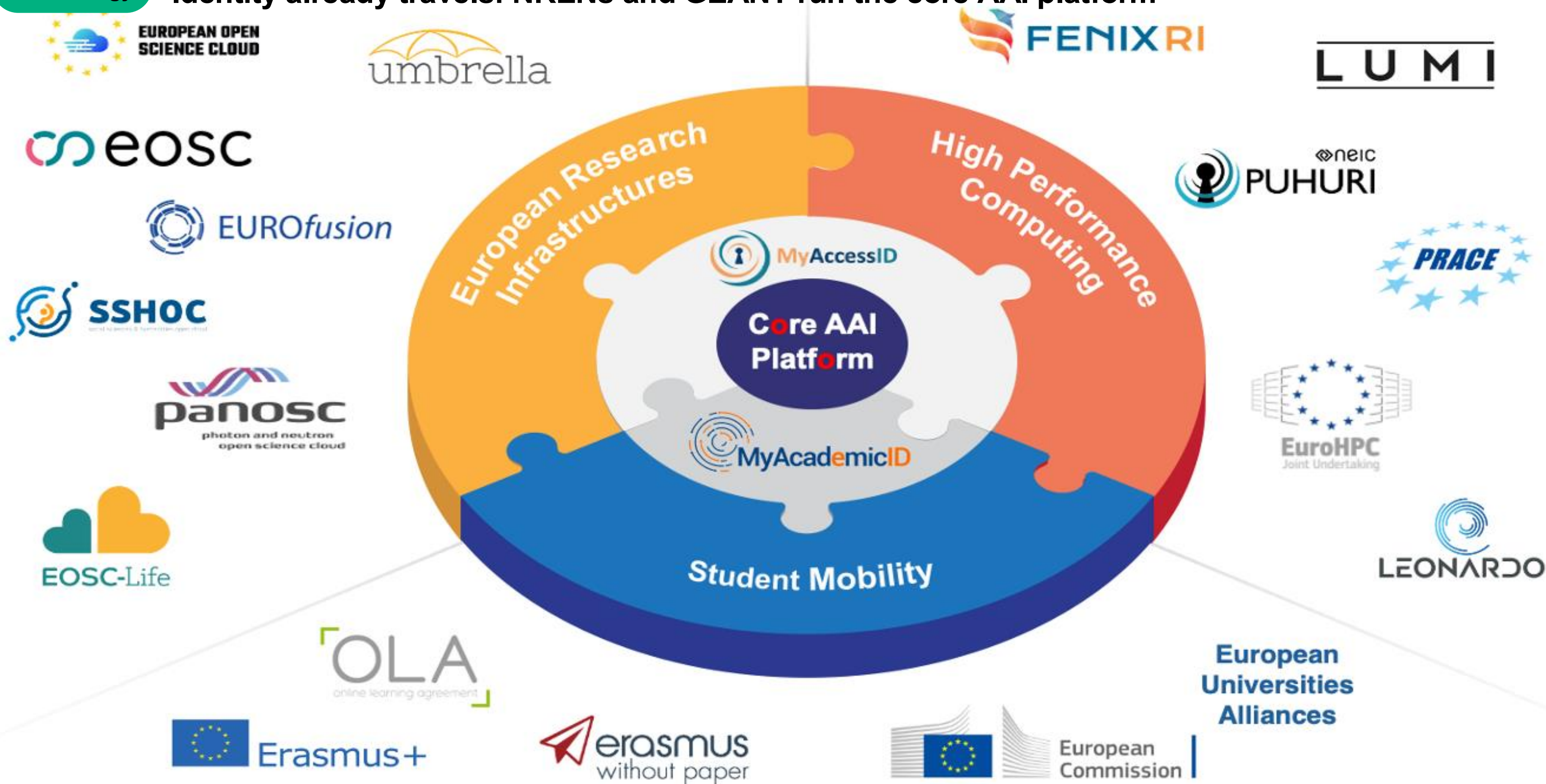
What your NREN already offers for education

The NREN catalogue on the GÉANT wiki.

wiki.geant.org

Technology

Identity already travels: NRENs and GÉANT run the core AAI platform



Which solutions exist for which use case

The eduXS inventory, mapped to the framework use cases.

app.eduxs.eu

Where NRENs sit

NRENs are the natural place to build this

Embedded

in the national educational ecosystem

Federated

by approach, which is how Europe connects

Experienced

in delivering and sustaining interoperable, scalable services
on existing solutions

Connected through GÉANT

which turns national efforts into European-scale solutions

Pilot Discover

Proof of Concept of using an European API level common format based on ELM, building on existing platforms eduXchange.eu (NL), Opin.fi (FI), Quality Link project's prototype platform, EMREX

**Deployment
interoperable Identity
solution**

**Next generation
Identity**

**Deployment interoperable
Apply & Recognition
solution**

**Deployment
interoperable Discover
solution**

2027

2031

2025

2029

Scoping Apply & Recognition

Pilot Identity

Demonstrating Student Access (virtual and onsite) using a European Educational IDentity approach across countries

Pilot Apply & Recognition

Scoping 5 other use cases



I find, I learn

Find something to learn in the open study options of 37 universities.

🔍

[All studies](#) →



Browse themes to find studies

Change management and analytics

Global diversity and equality

Renewal of working life and competence

New technologies

Health and well-being

Culture

Most popular

Course

University of Helsinki
Introduction to Biological Psychology
From 25.10.2026 • 5 cr
Online
Registration open

Course

University of Helsinki
Introduction to Biological Psychology
From 25.10.2026 • 5 cr
Online
Registration open

Course

University of Vaasa
Branding and Brand Communications
From 8.3.2027 • 5 cr
Online
Registration open

Course

University of Vaasa
Basics of Management and Organization
From 14.9.2026 • 6 cr
Online
Registration open

Course

University of Vaasa
Human Resource Management
From 8.9.2026 • 5 cr
Online
Registration open

eduxchange

Help

Online education catalogue of European Alliances

Availability depends on your current institution

Where do you study now?

Technical University of Denmark

École Polytechnique

Technion - Israel Institute of Technology

Eindhoven University of Technology

Technical University of Munich

Tallinn University of Technology

Czech Technical University in Prague

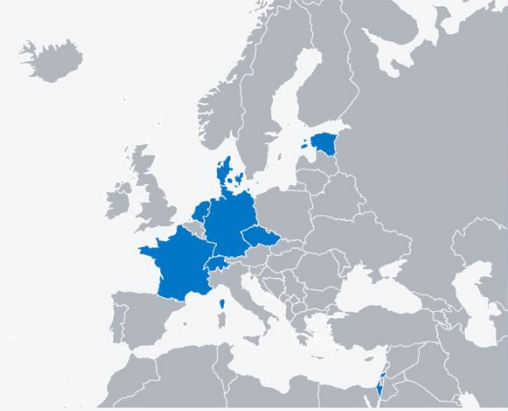
École Polytechnique Fédérale de Lausanne

HEC Paris

or view by country: [Denmark](#), [France](#), [Israel](#), [Netherlands](#), [Germany](#), [Estonia](#), [Czech Republic](#), [Switzerland](#)

When your institution is not listed above you can [contact us](#) for more information.

Destinations



9 universities from Europe have joined together in 1 alliance to welcome students from each other's universities.

Euroteq
9 institutions

Motivation



Pilot project: display Finnish courses in the Dutch eduXchange



Successfully mapped **HEDS** (Finland) to **OEAPI** in a Hackathon



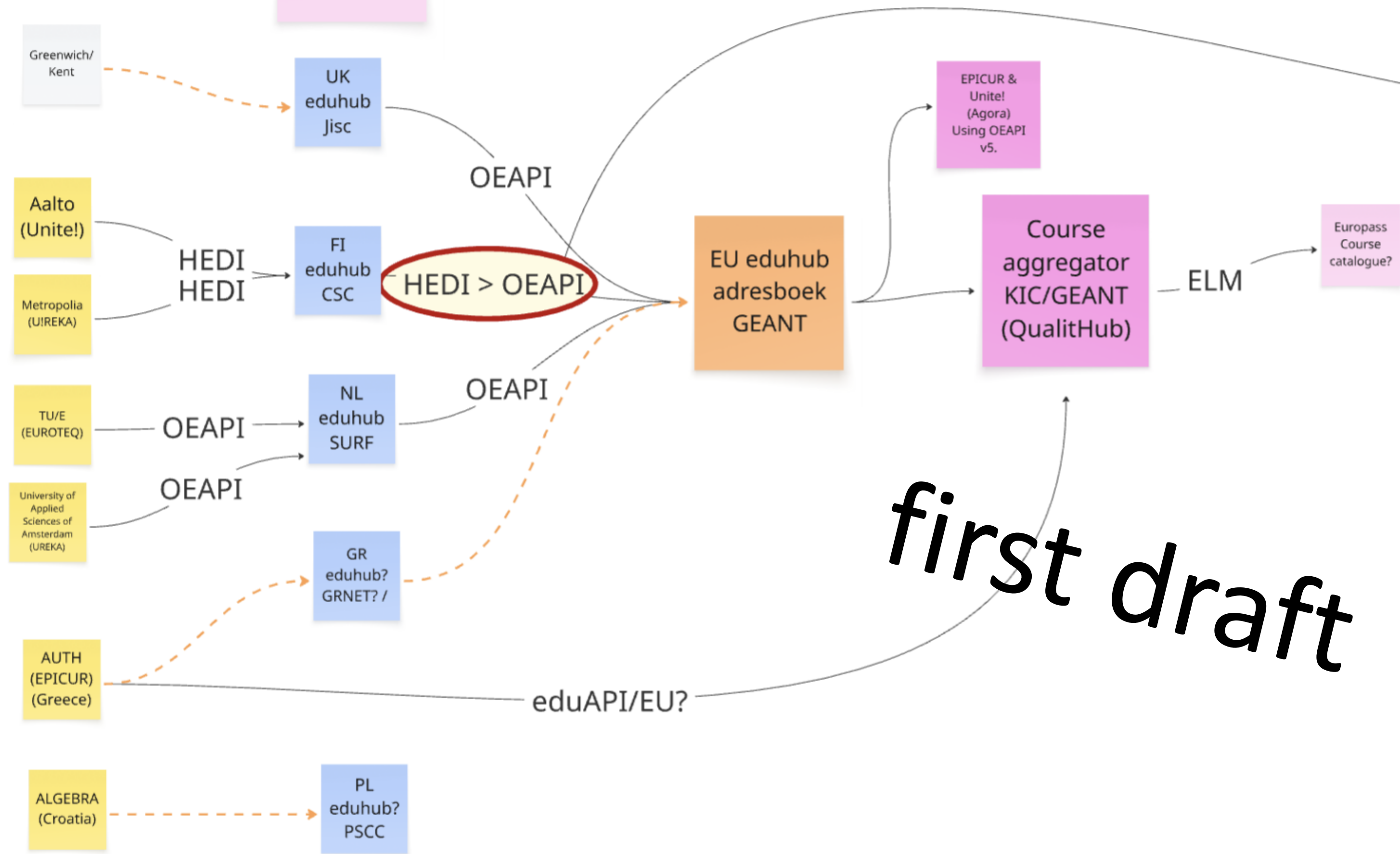
Questions raised:

- Who maps: HEI, hub, or the course aggregator?
- Multiple API standards exist: is convergence to one standard realistic?
- How did QualityLink solve this?



1. identifying the standards / schemas needed

2. cross mapping between schemas / standards



EDEH task force on data models and APIs

Workplan

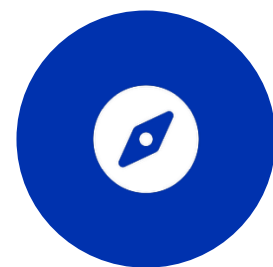
“Proposal for generic institutional API catalogues and registries, allowing institutions to expose interoperable standards”

Objectives

- Handle existing diversity of standards
- Allow to automate relationships
- Monitor implementation (e.g. dashboard)

User stories include

- Connect to other institutions' APIs
- Know where to find authoritative information
- Rely on a single registry of institutions
- Share my data/APIs in an easily discoverable way



Principles



Institutional autonomy

Freedom to choose from range of open standards
(depending on regional preference, budget, legacy systems, ...)



Low institutional burden

Institutions should not be burdened with additional translations or integrations (wherever possible).



Multi-standard as baseline

Standards should co-exist. Don't pick a winner, but embrace the diverse ecosystem.

Higher Education Interoperability Framework (HEIF): eight use cases, accompanied by various resources and “interoperability essentials” describing key standards for each

Proposal: publish manifest with API capabilities



Machine can decide:

- Connect directly
- Call Translator
- Reject (standard not supported)
- Other..



Publish at:

- /.well-known/capabilities
- DNS: point to capabilities JSON file
- OpenID Federation: Entity Configuration
- DID: services section of DID Document



Build upon existing standards:

- RFC 8414: Authorization Server Metadata
- RFC 9728: Protected Resource Metadata
- RFC 9421: HTTP Message Signatures

This is not new



QualityLink

- Erasmus+ project (2023–2026)
- Aggregate course data, based on ELM
- Supports: OEAPI, Edu-API, OCCAPI, ELM
- Discovery spec for limited scope

<https://specs.quality-link.eu/discovery.html>



EWP (Erasmus Without Paper)

- EC-funded, Erasmus+ mobility paperwork
- Self-published manifest + keys
- Some manual onboarding required
- 10+ years, adoption still partial

<https://registry.erasmuswithoutpaper.eu/>



Open by design
Full scope, i.e. all HEIF use cases



Point-to-point

- Tool reads the manifest, calls HEI directly
- No coordination, cross-border
- HEIs keep their own standard



Hub takes responsibility

- Hub publishes Manifest, **not** the HEI's
- Coordination by national / regional body
- Authorization (& translation) centralized

One thing to do this month

Check your NREN's catalogue entry

If what you offer for education is not on the map,
alliances and partner NRENs cannot connect to it.

1

Open the NREN catalogue on
wiki.geant.org

2

Compare it with what your institutions
actually use

3

Update it, and tell TF-EDU what is missing

**Join Digital
Transformation
professionals**

**2 - 5 June 2026
Riga,
Latvia**



Contact me at

evelien.renders@surf.nl

or connect on LinkedIn

Interested in the visuals?

www.interopvisual.eu

Want to help? Writing now: FIM4E paper

Alliances, universities and NRENs write down education's requirements. European Digital Education Hub, Task Force 3. v1.0 December 2026.



Evelien Renders

EUNIS president ◦ international IT collaboration ◦
digital transformation ◦ higher education - advisor at ...

