



**Hochschulforum**  
Digitalisierung

Channa van der Brug

**Förderung der  
digitalen  
Transformation:  
Praxisbeispiel zu  
Interoperabilität**

# Digitale Transformation – Chancen der Digitalisierung für den wissenschaftlichen Austausch

Schaffung von datenschutz- und informationssicheren, interoperablen Infrastrukturen und Prozessen im Bereich von Internationalisierung und Digitalisierung und digitaler Mobilität

Folgende Maßnahmen können zur Zielerreichung beitragen:

- » Austausch und Zusammenarbeit relevanter Akteure von nationalen und internationalen Aktivitäten/Good-Practice-Beispielen (Politik/Verwaltung; Hochschulen; EdTech-Sektor; weitere Akteure wie z. B. Hochschulforum Digitalisierung; DAAD; HRK; Stiftung Innovation in der Hochschullehre; KI-Campus; „Mein Bildungsraum“; Communities of Practice; etc.) zur Digitalisierung im Kontext der Mobilität mit dem Ziel eines vernetzten Systems zur Förderung der Interoperabilität im europäischen Bildungsraum;
- » Unterstützung von Aktivitäten der Hochschulen für eine technische Interoperabilität durch Bund und Länder, nach Möglichkeit Erschließung europäischer Fördermittel;
- » Förderung von zentralen einrichtungübergreifenden Online-Services zur Digitalisierung relevanter Hochschulprozesse im Bereich der internationalen Mobilität mittels konfigurierbarer Verwaltungs-Workflows;
- » Sicherstellung des Zugangs von Studierenden, Lehrenden, Forschenden, wissenschaftsunterstützendem Hochschulpersonal zu digitaler Mobilität und Abbau administrativer Hürden seitens der Hochschulen;
- » Systematische Vernetzung der im Rahmen der NFDI geschaffenen Strukturen zur Erschließung, Sicherung und Zugänglichmachung von Datenbeständen mit (inter) nationalen und insbesondere europäischen Strukturen des Forschungsdatenmanagements.

# Die Entwicklung der europäischen Zusammenarbeit im Hochschulsektor



Erasmus beginnt  
1987

Papiergestützte  
Prozesse



Erasmus für  
Mitarbeitende  
1997

Internet



Erasmus für  
Arbeitserfahrungen  
2007

Papiergestützte  
Prozesse



Sorbonne-Rede  
2017

Moderne  
Technologien?

**Ein\*e Lernende\*r**  
**Eine Hochschulallianz**

**=**

**Neun Institutionen**

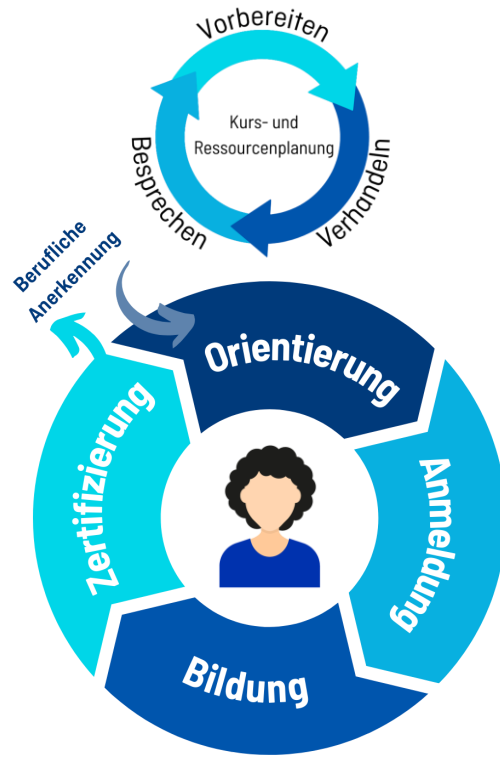
**Treffen Sie Sam** →



**LERNENDE\*R**

# Sam's Lern-Reise





## 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.

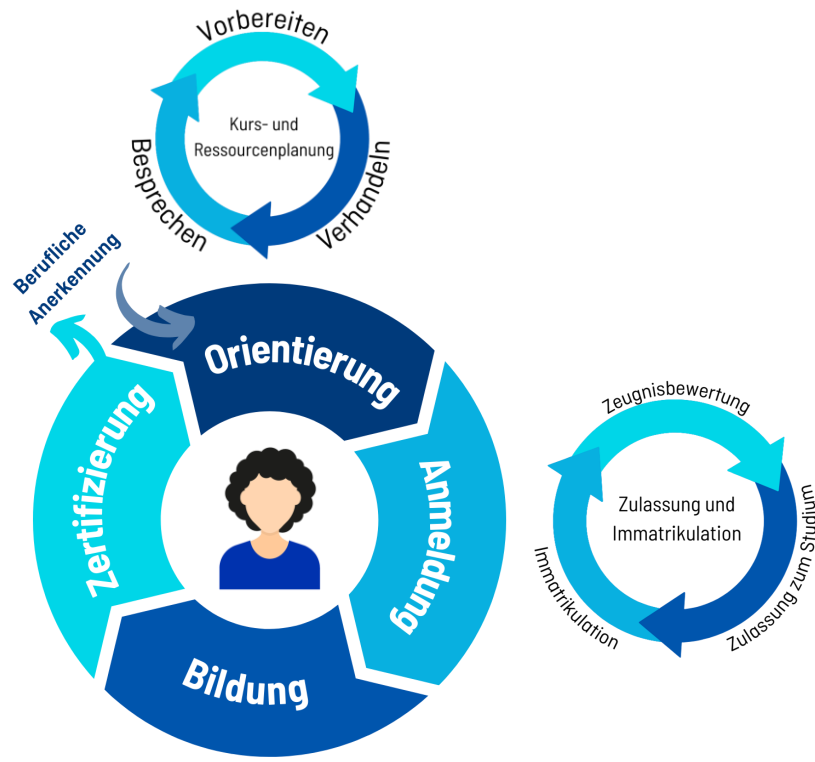
CMS (website)

Course catalogue

Curriculum management



# Orientierung





## USE CASE 2

### Apply & get recognition

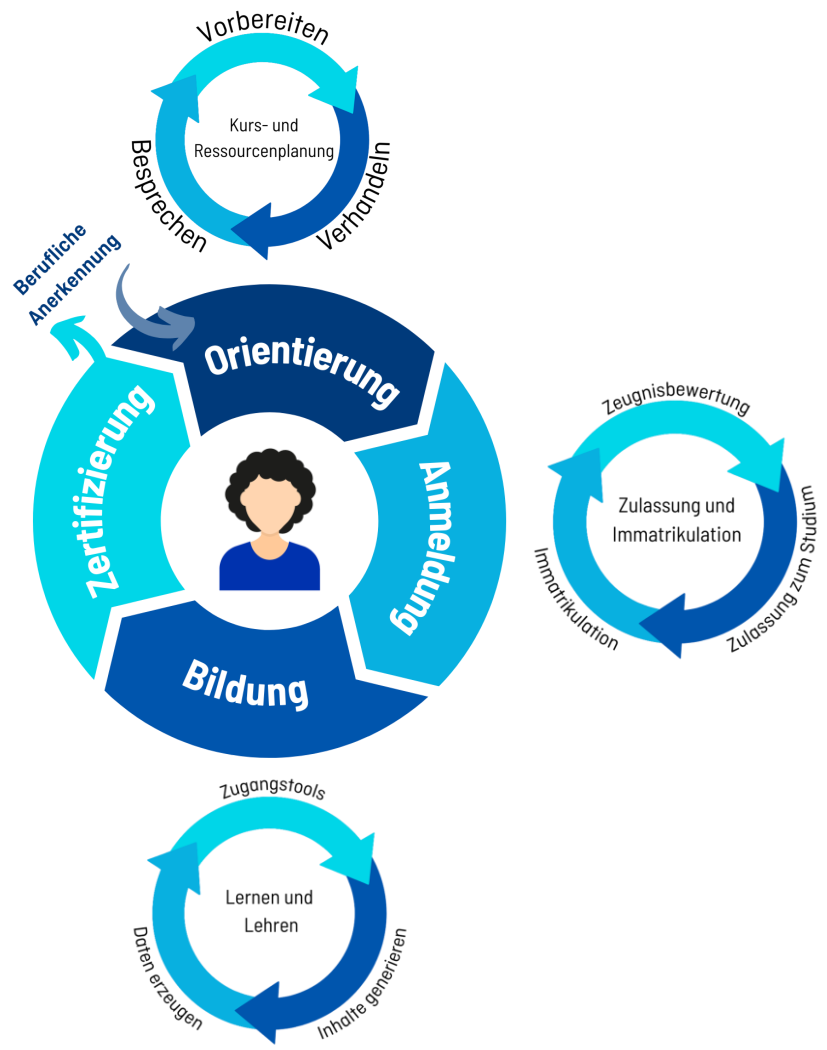


Simplifying credit recognition and cross-institutional enrolment, emphasising seamless data exchange to support all forms of learner mobility and academic continuity.

Admissions

Recognition





USE CASE 3

Access tools



Streamlining the procurement, 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 5

Generate data

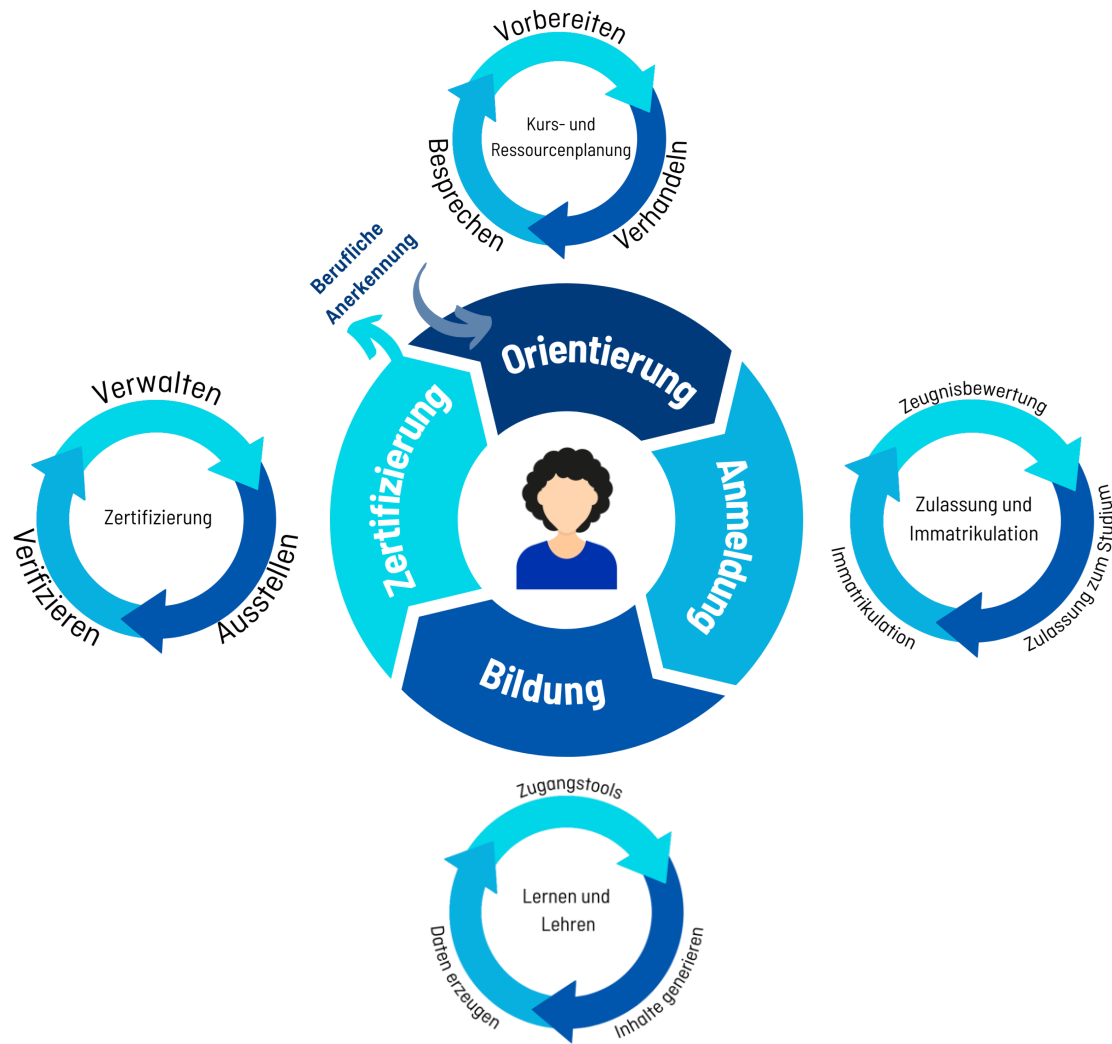


Establishing a standardised approach for the exchange of learners' activity data to ensure a seamless integration of various virtual learning environments.

- Learning Analytics
- Student Analytics



Bildung



## USE CASE 6

### Earn credential



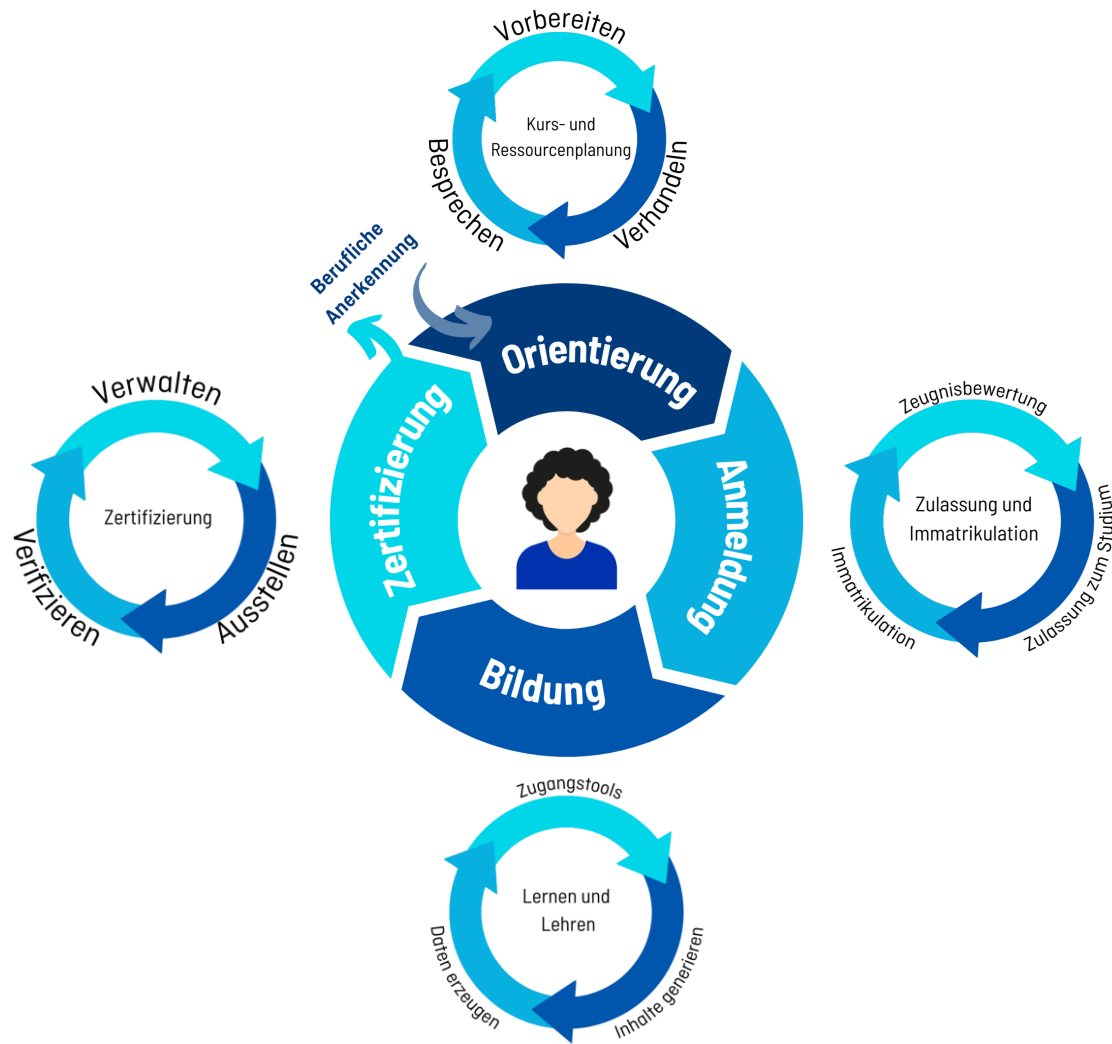
The digital management of educational credentials (issuance, verification, revocation), affirming the achievements from diverse learning experiences.

Micro-credentials

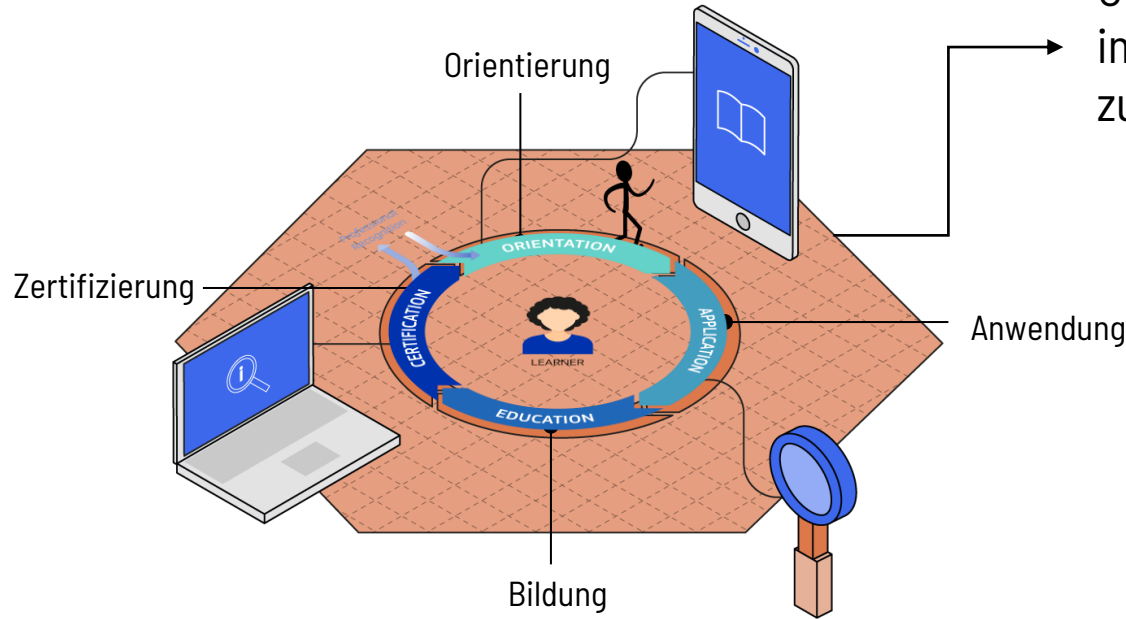
Portable credentials



Zertifizierung

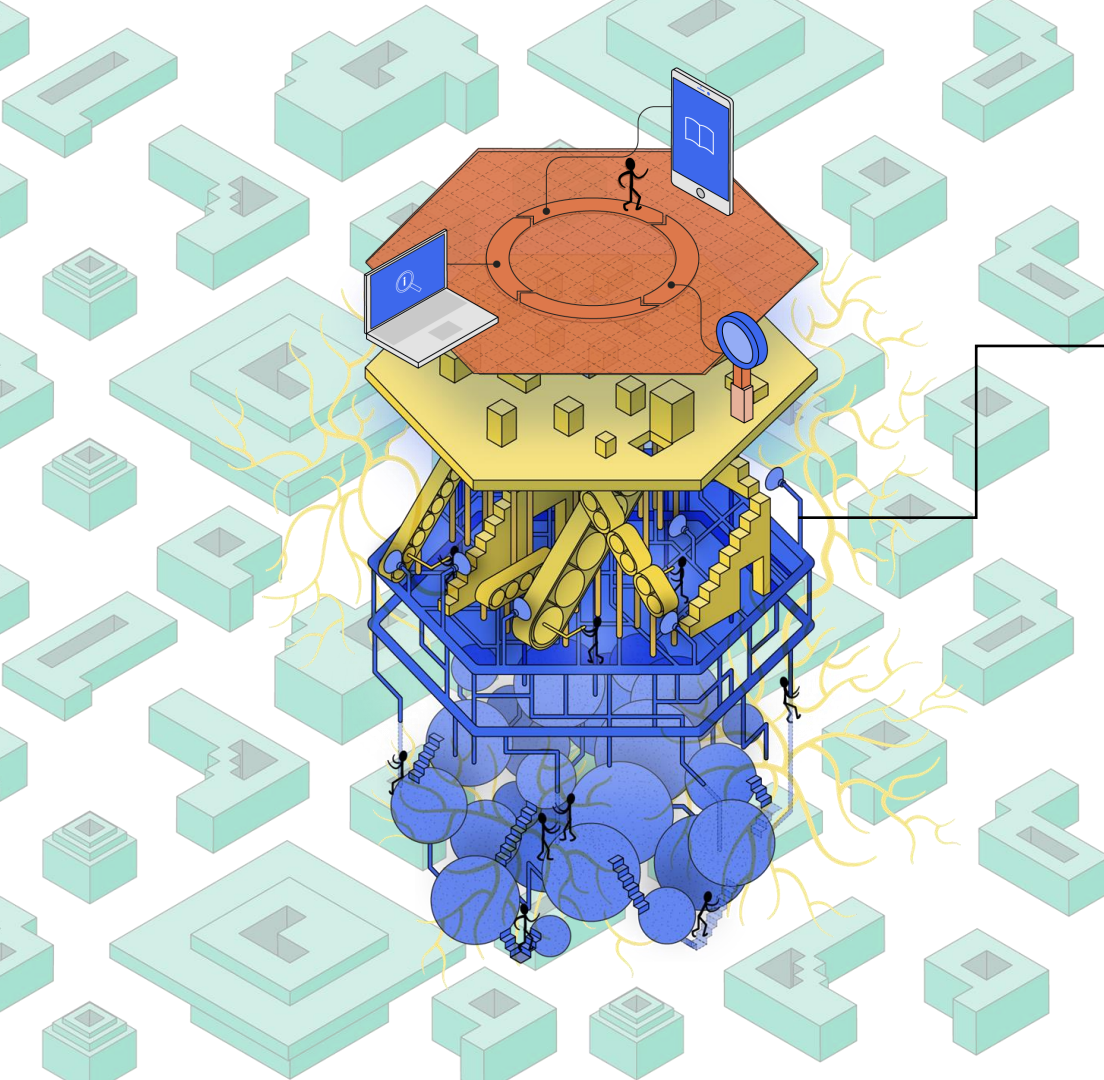


# Interoperabilität

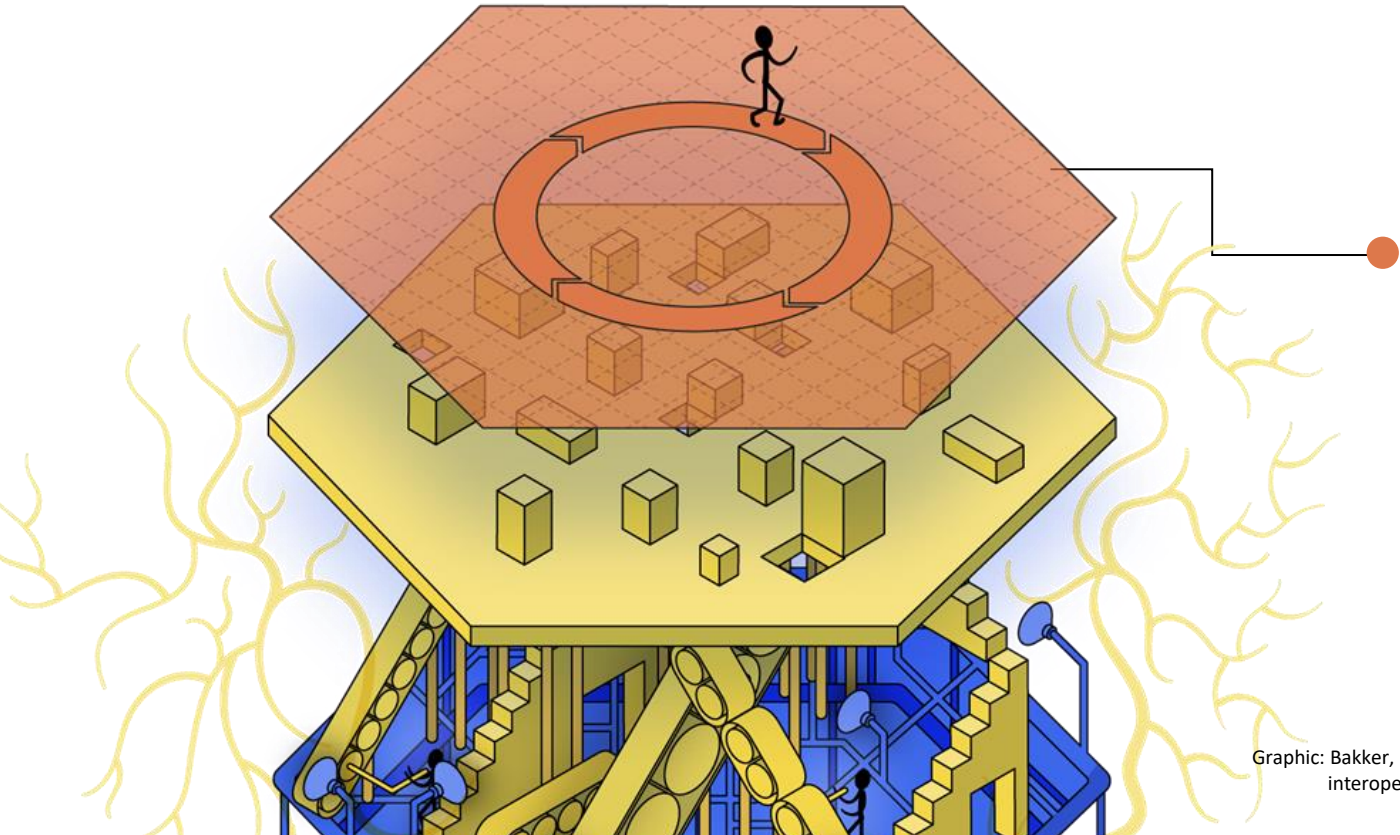


Um den Lernprozess  
innerhalb einer Institution  
zu erleichtern...

... wird ein Ökosystem  
benötigt.

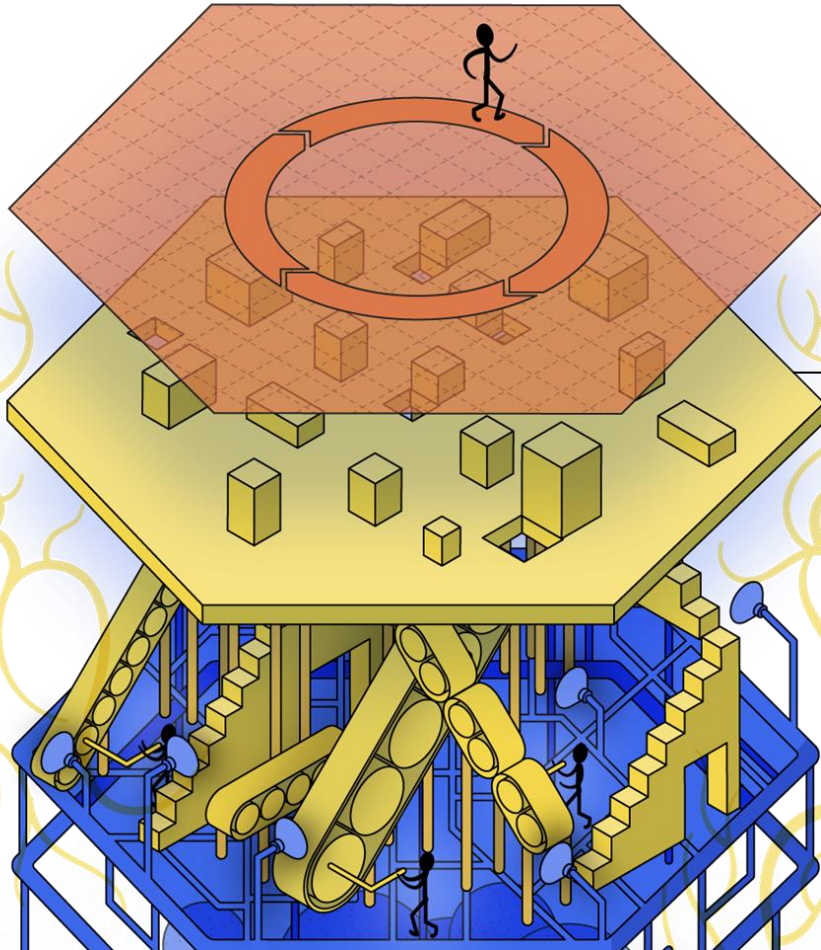




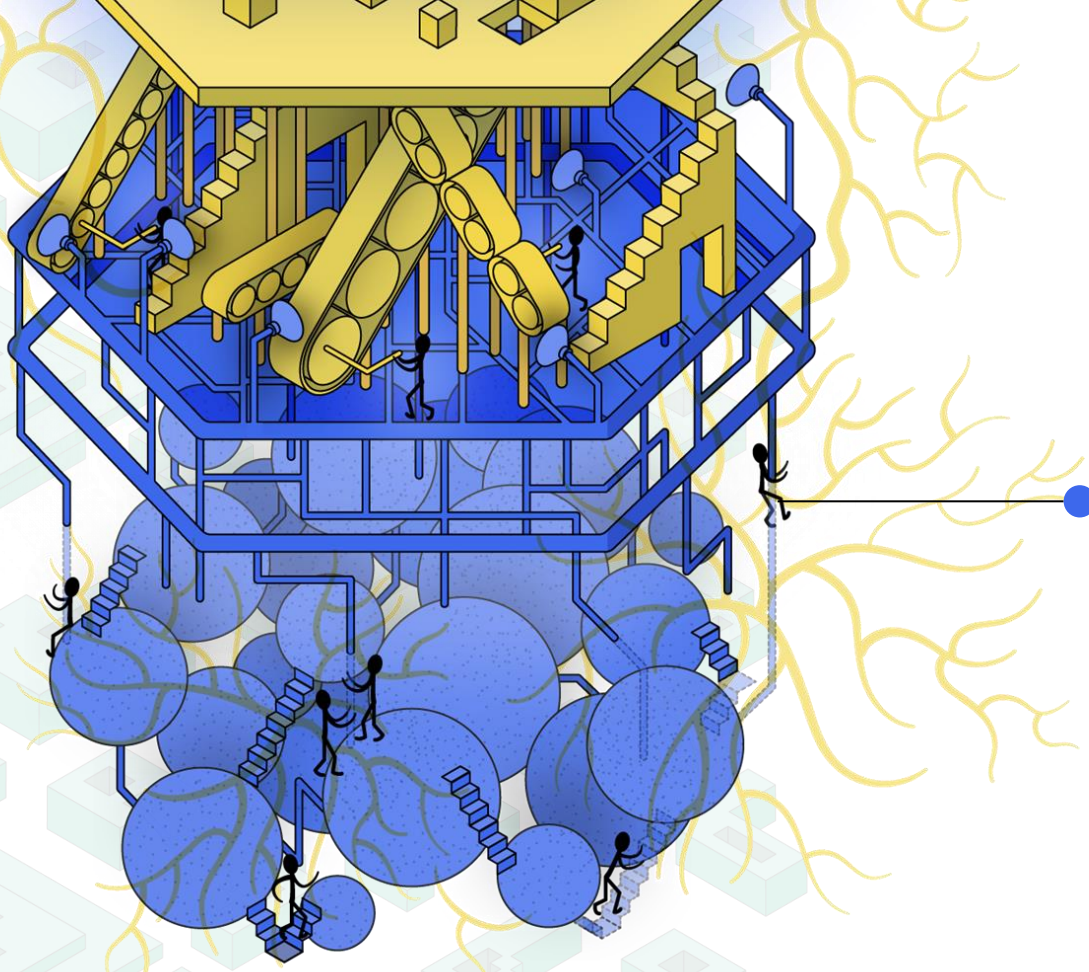


User &  
Leistungen

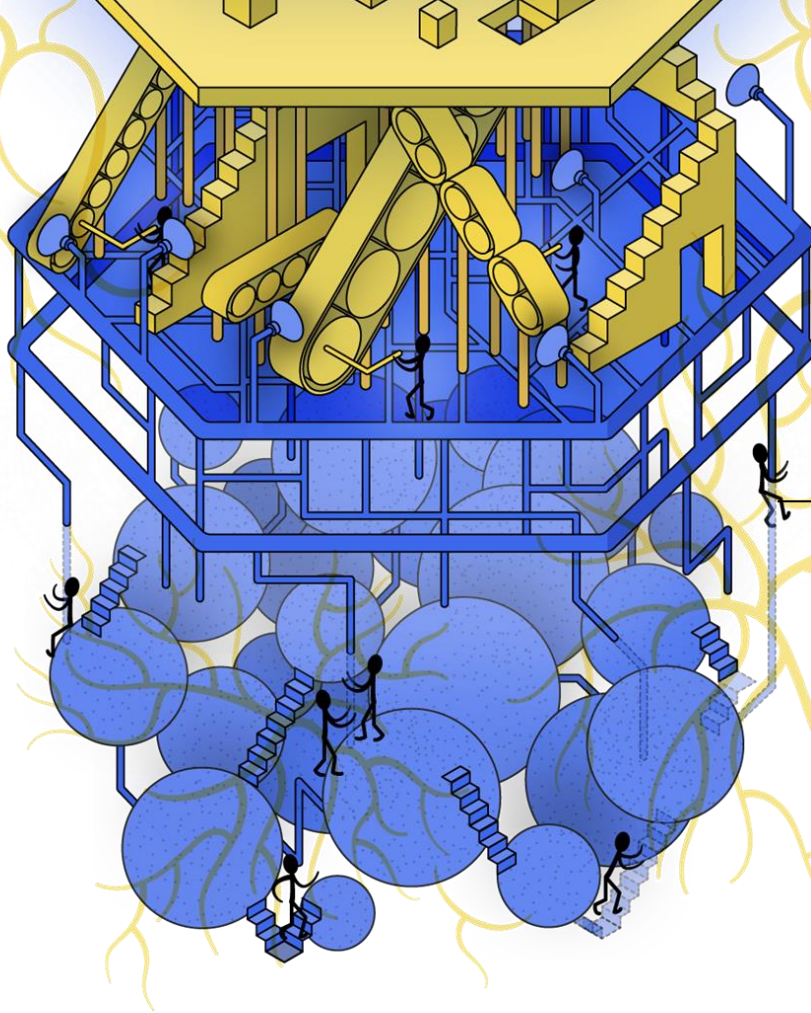
Graphic: Bakker, N., Janse, D., Renders, E.A., (2024) Educational interoperability. Utrecht: Npuls. [www.interopvisual.eu](http://www.interopvisual.eu)



● Organisation & Prozesse



## Anwendungen & Informationen



Standards





# Interoperabilität: Skalierbare Lösungen für die Herausforderungen der Internationalisierung

## ...Warum Jetzt?

**Effizienzsteigerung**

**Skalierbarkeit**

**Zukunftsfähigkeit**

# Skalierbar?



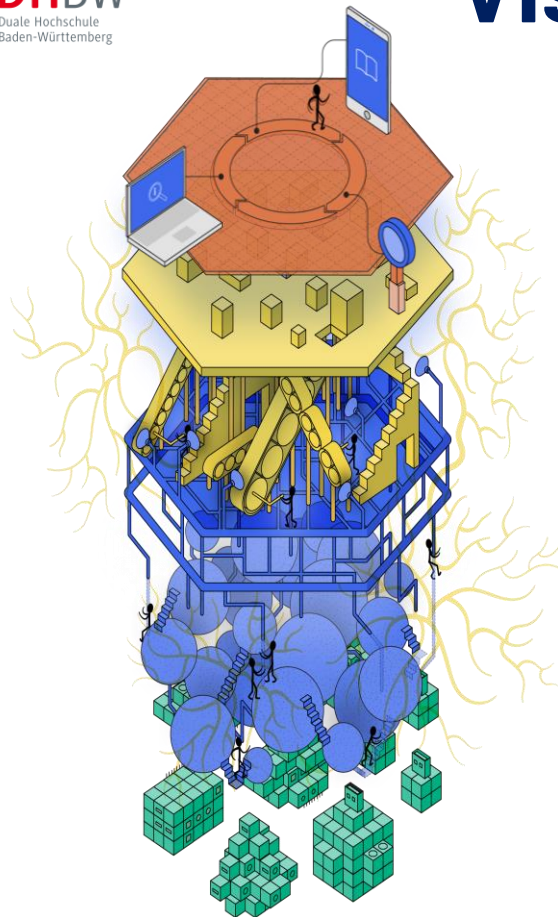
Vertrauen  
Telefonat, Direkter E-Mail-  
Kontakt, Mund-zu-Mund  
Propaganda

Externe Systeme und  
Speicher, Workaround  
für Zugang

Certificate upload/sealing über  
ein Unternehmen

Europass-Plattform  
ErasmusWithoutPaper Platform

Neue User-ID bei der  
Einschreibung



# Vision



## USE CASE 1

Discover  
Kurskatalog

## USE CASE 2

Apply and get  
recognition

**Vorabgenehmigung**

## USE CASE 3

Access tools  
Zugang

## USE CASE 6

Earn a  
credential

**Automatisierte Freigabe**

## USE CASE 7

User identity  
**Lebenslange Studierenden User-ID**

# Die wichtigsten Take-Aways

- **TECHNISCHE** Umsetzung: Skalierbarkeit erfordert Automatisierung durch Interoperabilität. Machen Sie Ihre Systeme zukunftssicher → ausreichende IT-Ressourcen und Unterstützung der Hochschulleitung
- **ORGANISATORISCHE** Optimierung: Wissen ist entscheidend, um zu verstehen, wo Automatisierung wichtig ist. Identifizieren Sie Schlüsselpersonen, die Technologie und Prozesse verstehen und alle Beteiligten zusammenbringen
- Ein ganzheitlicher Fortschritt erfordert die Verknüpfung von technischem und organisatorischem Wissen: ein **SYSTEMISCHER ANSATZ**



# Tipp: Experimentier- freudigkeit erhöhen

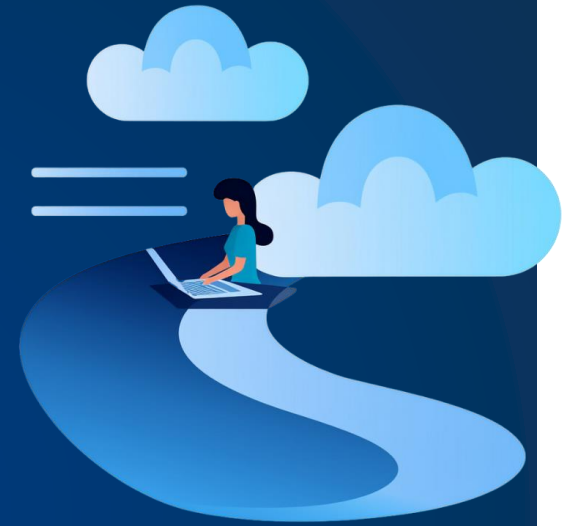
## – und Wissensaustausch über die gewonnenen Erkenntnisse

### Kurzfristig

- Mapping systems, processes, and data flows. Visualisieren Sie die Student Journey
- Einen Champion stärken!
- Pilotierung technischer Lösungen und schrittweises Scale-up

### Mittelfristig

- Erkenntnisse in der Hochschullandschaft kommunizieren und verbreiten
- Mutig sein und experimentelle Ansätze fördern
- Bereitstellung ausreichender Mittel



# Weitere Herausforderungen in Deutschland

## Herausforderungen

Föderalismus in der  
(Hochschul-)Bildung



(Mangelnde) Digitalisierung der  
Hochschulen



restriktiver Umgang mit  
Datenschutzregularien



## Lösungsansätze

verstärkte Bund-Länder-  
Kooperation zur Abstimmung  
von Rahmenbedingungen

umfassende Digitalisierung  
vorantreiben

Hinweise zur praxisnahen  
Umsetzung der DSGVO



# Europäischer Interoperabilitätsrahmen

Erarbeitung eines Interoperabilitätsrahmens für den Hochschulsektor  
in Zusammenarbeit mit einer Arbeitsgruppe

Mehr nahtlose digitale Lehr- und Lernerfahrungen

Aufbau eines Forums für den Austausch und die gemeinsame Nutzung  
bewährter Methoden

Darstellung vorhandener Lösungen im Kontext einer  
Referenzarchitektur

Schaffung einer Basis für EU-weite Normen im Datenaustausch

# Was ist der European Digital Education Hub?

Ein **dreijähriges Projekt der Europäischen Kommission**, das durch Erasmus+ (2021-2027) finanziert und von einem **Konsortium aus 13 Organisationen** im Rahmen eines Dienstleistungsvertrags mit der **European Education and Culture Executive Agency (EACEA)** durchgeführt wird. Ziele sind:

**Collaborative Community of Practice**

**Knowledge Exchange**

**Platform to Accelerate Innovation in Digital Education**

# Ressourcen für die Umsetzung

## „Journey of Collaboration“

- ✓ Gesamtbild
- ✓ Hilft, den Bedarf zu klären und Prioritäten für bestimmte Anwendungsfälle zu setzen

## Veränderungsprozesse

- ✓ Beispielhafte Darstellung zur Begleitung der Änderungsprozesse

## Anwendungsfallsspezifische Ressourcen enthalten bspw.:

- ✓ Prozessleitfäden, Modular und flexibel zur Adaption der jeweiligen Allianz
- ✓ Kommunikationsmittel
- ✓ Workshop-Pakete die gemeinsam mit Expert\*innen aus dem Hochschulbereich entwickelt wurden



Curious to  
know more?  
Read the  
reports?  
Get involved?  
**Join the Hub!**



# Hochschulforum Digitalisierung

**Bleiben wir in  
Kontakt!**



Channa van der Brug

[Channa.vanderBrug@stiffterverband.de](mailto:Channa.vanderBrug@stiffterverband.de)

<https://hochschulforumdigitalisierung.de>



← HFD-Newsletter

# Was sind die Europäischen Hochschulallianzen?



**EUROPEAN UNIVERSITIES**

**A key pillar of the European Education Area**

- 64 alliances
- 35 countries, including all 27 Member States

**WHY EUROPEAN UNIVERSITIES?**

In our interconnected world, addressing global challenges requires a collective effort. It is a shared responsibility to enable current and future generations to acquire future-proof skills for their own and Europe's benefit.

The rapidly evolving labour market and societal transitions require higher education institutions to adapt and provide students, academics, university staff, and lifelong learners with the skills they need to prosper in a **blue green and digital transition** and build a resilient society. Beyond their core tasks of teaching, research and innovation, universities are key actors in Europe to address big societal challenges, being true engines of development for cities and regions and promoting civic engagement.

**WHAT ARE EUROPEAN UNIVERSITIES?**

European Universities are ambitious transnational alliances of higher education institutions developing long-term structural and strategic cooperation.

**Key criteria**

- Minimum of 3 higher education institutions, from 3 EU Member States or third countries associated to the Erasmus+ programme.
- Key cooperation principles
  - Alliances develop joint long-term strategies for innovation with, where possible, links to research and innovation to drive systemic, structural and sustainable impact at all levels of their institutions
- Alliances create and implement European inter-university campuses, where:
  - do research, work or share services across borders and disciplines
- transdisciplinary and transnational teams of students, academics and external stakeholders tackle big issues facing Europe (such as climate protection, digitalisation, health, democracy, migration, security)
- students can design their own flexible curricula, leading to a European Degree
- practical and/or work-based experience is provided to foster an entrepreneurial mind-set and develop civic engagement
- the student body reflects the social, economic and cultural diversity of the population

More than 560 higher education institutions

Up to EUR 14.4 billion from Erasmus+ per alliance for 4 years

Teaming up with around 2200 associated partners, including higher education institutions from Bologna Process countries.

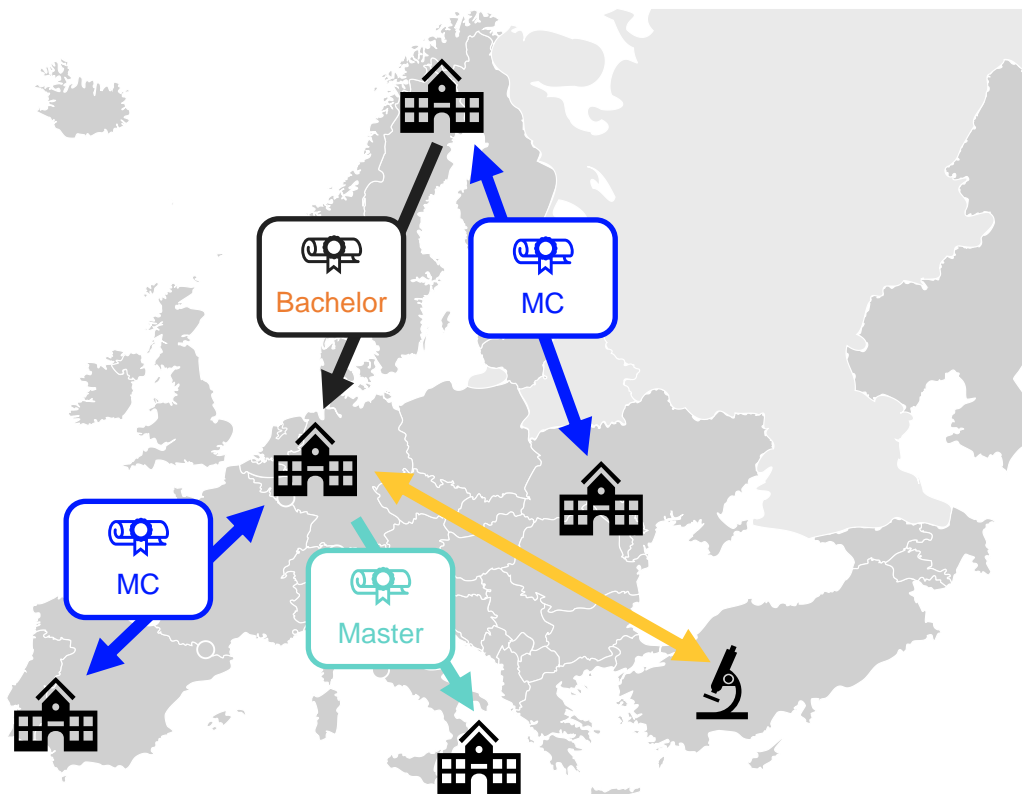


*"Higher education institutions from all over Europe participate, not only from capital cities but also from more remote European regions"*



# Our goal: a seamless cross-national learner journey

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





# 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.

# Starting the journey: Impact and actors

## 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)*.

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The **synthesis re**  
understand the  
which they oper  
context.

# Unlocking the Full Picture: The state of interoperability in European Higher Education

## 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.

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RE: Assessing the alliance's  
erability status quo

6) WHAT: Gaining clarity on own  
objectives and gaps



## Doing the health check: Strengths and opportunities

### 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.



### 7) HOW: Identifying strengths and fill the gaps

The **framework report**, together with the **mapping report** for further details, provides an overview of status along with descriptions of the reference architecture, the high-level business

## Interoperability Self-Assessment

### Purpose

This interoperability self-assessment tool can provide guidance to Higher Education Institutions (HEIs) and European University Alliances (EU-As) to assess their readiness and progress in implementing the proposed reference architecture for eight priority interoperability use cases situated along the learner life-cycle (see below). As such, it helps to identify strengths and areas for development to advance their interoperability agenda and can aid in priority-setting and decision-making for next steps.

### Description

The tool contains one dedicated assessment tab for each of the use cases. The status quo for the use cases can be assessed on the level of individual HEIs as well as on the level of the alliance for

pe

**Analysis report** can help alliances  
understand the state of art of the landscape in  
order to operate and provide for the broader

## Building the house: What is in place & what is missing

### 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.

Allian's status in implementing the reference architecture, helping to identify strengths and areas to put efforts on.

overview of current solutions to identify existing gaps towards 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.

**Going shopping:**  
Recommendations, tools, and standards for success

identify existing gaps to  
for the use cases.

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further details on solutions,  
ew of standards and tools,  
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identified gaps.

## Taking the tools: Hands-on resources for implementation

### 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.

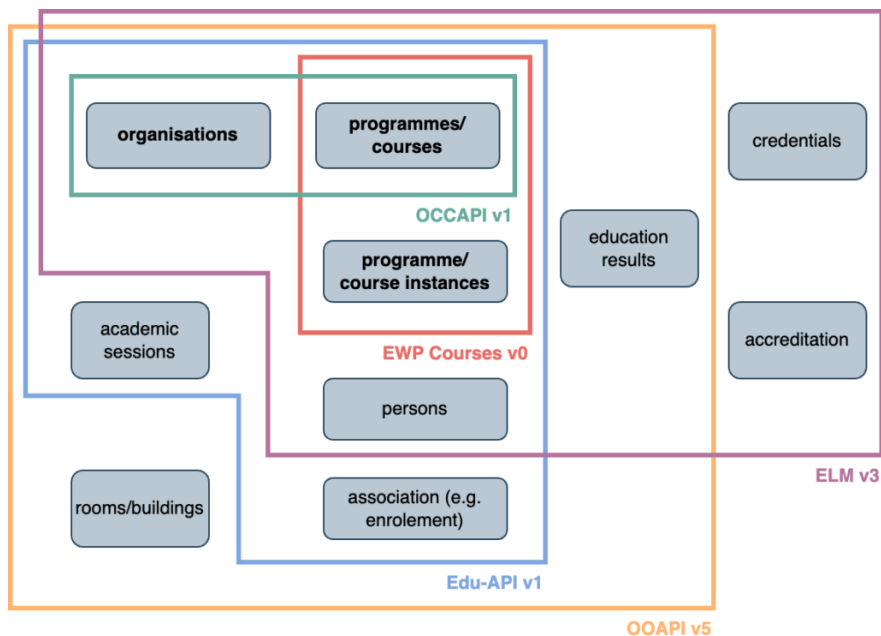


# Taking the Framework Further

- **Activities in EDEH:**
  - Higher Education Interoperability Workgroup & Community
  - Onboarding sessions for new members/colleagues
  - Regular feedback or Q&A sessions
  - E-learning modules on HE Interoperability
  - Looking for alliances to pilot the resources

# Stakeholders taking the Framework further

- QualityLink continuing the standards alignment [www.quality-link.eu](http://www.quality-link.eu)



# Stakeholders taking the Framework further

EduXS continuing the mapping  
of services and standards

[www.eduxs.eu](http://www.eduxs.eu)

The screenshot shows the EduXS website interface. At the top, there is a dark navigation bar with links for Home, Overview, and About. A yellow banner in the top right corner states: "EduXS is still under construction - we would appreciate your feedback". The EduXS logo is also present. Below the navigation bar, the main heading is "Mapping the Digital Education Ecosystem", followed by the subtitle "Ensuring understanding of Europe's digital education landscape through stakeholder mapping, projects, and standards." A search bar is located below the subtitle, with the placeholder text "Search Collaborations, Organisations, Services and more...". The main content area features a section titled "Topics on the learner journey" which contains a grid of eight icons, each with a corresponding label: Discover, Apply and get recognition, Access tools, Manage educational resources, Generate data, Earn a credential, User identity, and Institutional identity.

Home Overview USA About EN

EduXS is still under construction - we would appreciate your feedback

eduxs

## Mapping the Digital Education Ecosystem

Ensuring understanding of Europe's digital education landscape through stakeholder mapping, projects, and standards.

Search Collaborations, Organisations, Services and more...

### Topics on the learner journey

- Discover
- Apply and get recognition
- Access tools
- Manage educational resources
- Generate data
- Earn a credential
- User identity
- Institutional identity

### 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

### 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

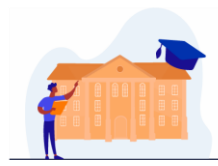


Achieving interoperability for user identities across educational transitions, ensuring consistent identification throughout their academic journey.

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