

**BRIEFING**

# Developing common learning opportunities through interoperability

The status and outlook for European higher education

Thomas Jorgensen, Clare Phelan, Liliya Kukuruza

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**European University Association asbl**

Avenue de l'Yser 24

1040 Brussels

Belgium

+32 (0) 2 230 55 44

Rue du Rhône 114

Case postale 3174

1211 Geneva 3, Switzerland

+41 22 552 02 96

[www.eua.eu](http://www.eua.eu) · [info@eua.eu](mailto:info@eua.eu)

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# Introduction

Interoperability is potentially one of the most transformative developments in higher education; it holds the promise of seamless systems where learners, teachers and professional staff can smoothly work across institutions, sharing data and processes from logging in to providing diplomas and credentials. Although the idea of a learner-centric, open European system is not new, the development of joint, virtual campuses in the context of the European Universities Initiative (EUI) has refocused attention on interoperability and its potential to transform how universities work together across borders. What is more, the prospect of learners having access to educational resources from multiple institutions across Europe raises questions about the nature of programmes, degrees and the role of universities as centres of learning.

There is a good deal of study going into the technical side of interoperability, but the larger, political and discursive aspect of the topic often gets overshadowed by discussions about processes and tools. Interoperability will emerge not because it is technically possible, but because there is a political incentive for institutions to make it a reality. This publication looks at the issue from the institutional perspective. It considers how (and if) the practical efforts to realise interoperable systems are (to be) embedded in a bigger picture of European higher education, and what these efforts – if they continue to gather momentum – might lead to in the longer term.

During the spring of 2024, EUA conducted eight interviews with practitioners from various member universities that are engaged in the EUI. EUA staff also did desk research and participated in very valuable discussions addressed within the European Digital Education Hub (EDEH) and its project to create a [European Interoperability Framework](#). The purpose of these interviews was to get a sense of the state of play and gain a deeper understanding of how, within the institutional contexts, the potential benefits of interoperability are perceived and the barriers to implementing interoperable structures addressed.

We hope that this publication will be a constructive contribution to an ongoing debate, going beyond the audience of practitioners, and give an overview for university leaders and policy makers who have not been deeply involved in the previous discussions. The paper outlines the converging factors that have brought interoperability to the forefront of discussions around the future of university cooperation in Europe. It presents an overview of how interoperability is addressed, both in terms of opportunities and obstacles, within selected institutions / EUI alliance members. Further, it considers two prerequisites for advancing interoperability: commonly agreed data standards and guidance for institutions on working towards a shared vision for cooperation across the sector. Lastly, the paper looks to the future: it presents an outlook for various scenarios that might emerge depending on whether – and in what form – interoperability becomes a reality for universities.

## ACKNOWLEDGEMENTS

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# Chapter 1: Converging factors

## Why interoperability now?

Interoperability is connected to a varied and converging array of discourses, which centre around implementation of technologies, policy initiatives and institutional priorities. Some of these discussions are more specific to higher education, while others are much broader, concerning the digital transformation of European societies.

### EUROPEAN HIGHER EDUCATION POLICY - THE EUROPEAN UNIVERSITIES INITIATIVE

European cooperation in higher education requires a technical foundation to make the cross-border exchange between institutions a reality and to form digital bridges between partnered universities. So, interoperability is, in this context, an important factor in achieving a high-priority element of higher education policy – the ambition to develop a cohesive, integrated system for the seamless exchange of data between institutions in the European Higher Education Area (EHEA). The focal point of current interoperability discussions in higher education at the European level remains the EUI and the ambition of university alliances to create platforms where learners can access materials and attend courses offered by many different institutions participating in the same alliance.

The EUI has become an important vehicle for implementing core elements of European higher education policy, with alliances generating momentum – and providing testbeds – for rollout of key initiatives. The EU-funded projects within the EUI are the context in which the present activities concerning interoperability happen at the European level. These activities are embedded in project structures, where outcomes form part of the deliverables defined within the projects.

Beyond the concrete work within the individual alliances, the EU has also funded common work on interoperability through its [European Digital Education Hub](#) (EDEH), where those active in creating solutions for interoperability can discuss, exchange and get an overview of what is happening across Europe. In the [manifesto](#) of this EDEH interoperability workgroup, one main principle underpinning development of the proposed European Higher Education Interoperability Framework is to make a system where learning belongs to the learner.

In addition, as of 2024 the alliances have created a Community of Practice, funded through the European Commission, which intends to establish, as part of the community, a forum for discussions on the topic of interoperability.

At the same time, there are several national projects and organisations aimed at achieving interoperability between institutions at the national or system level. Many of these are long-standing projects that have, by now, established well-functioning systems and infrastructure for exchange among institutions operating in the same national system.

## DIGITAL SOVEREIGNTY

The principles of the interoperability Manifesto reflect already present discourses related to a much larger topic of European digital sovereignty, and the aim of the EU to guide the digital transformation in Europe based on shared values and principles. The EU approach to the digital transformation underlines having values and humans in the centre (supposedly as opposed to a state-control approach in China and a more commercial approach in the US).

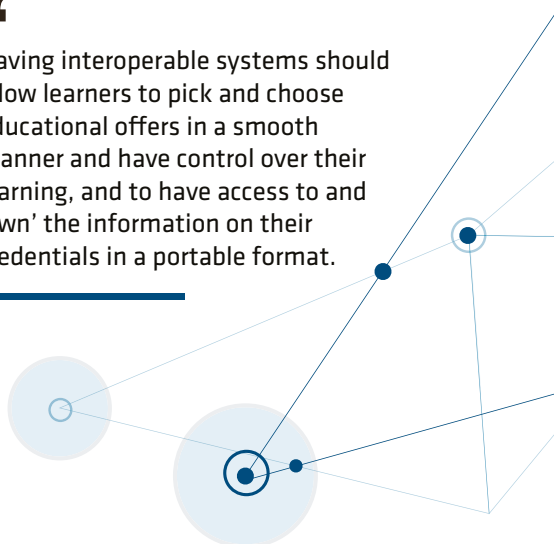
Moreover, the EU seeks to avoid dependence on systems and technologies from outside the Union. Here, interoperability is a means to avoid monopolistic behaviour, for example by big cloud providers, so that institutions – like universities – have a real choice to move from one provider to another without encountering too many technical and organisational obstacles. Universities around Europe have also adopted the term digital sovereignty with a similar focus: to avoid being locked into big technology companies, which do not share university values, and instead promote a more open and value-based digital culture.

The goal of digital sovereignty is a strong element in the interoperability discourse, which emphasises the need for open standards and for different systems to be able to work together. Here, interoperability based on open standards is seen as the technical foundation that allows switching between providers as well as enabling smaller companies and universities themselves to develop digital solutions that can work together. There is also an individual angle, where interoperability enables the learner to have full control of their data by not locking it to a specific company or piece of software. From the institutional side, interoperable systems, based on open standards, would give institutions the option to manage platforms and tools onsite, thereby allowing them to protect data from external actors.

## POLITICAL CONTEXT



Having interoperable systems should allow learners to pick and choose educational offers in a smooth manner and have control over their learning, and to have access to and 'own' the information on their credentials in a portable format.



Beyond the technical possibilities to create interoperable platforms for learning, Europe is seeing a series of political initiatives that provide a framework for these technical solutions.

This is particularly true regarding identification, where the [electronic Identification Authentication and trust Services \(eIDAS\) regulation](#) establishes the legal basis for a common system of digital identification and storing credentials in the widest sense of the word. The regulation sets the requirements for personal 'wallets' where citizens can store a range of different documents such as driver's licenses, passports, or diplomas and other educational credentials. Such wallets have been piloted by [Europass](#) for educational credentials and they are being tested, for example through the [Digital Credentials for Europe Project](#).

More broadly, the EU has also set up a governance structure for [interoperability of public services](#), although the impact of this initiative on higher education is not clear yet. In addition, the EU has established initiatives such as the [European Blockchain Services Infrastructure \(EBSI\)](#), also with educational diplomas

as a specific use case. The explicit aim of many of these political-technical initiatives is to give back control to citizens by establishing structures that do not rely on centralised services but allow for direct ownership and management of credentials by the users.

In the higher education context, the concept of student-centred learning also influences and fuels parts of the discussion on interoperability. Having interoperable systems should allow learners to pick and choose educational offers in a smooth manner and have control over their learning, and to have access to and 'own' the information on their credentials in a portable format. Instead of having one institution and one programme in the centre of learning, a truly interoperable system would reinforce the idea that 'learning belongs to the learner', as the [European Digital Education Hub Manifesto for interoperability](#) puts it.

## NATIONAL INITIATIVES

While the European push for interoperability is very much focused on the EUI, there are a number of projects to enhance interoperability at the national level.

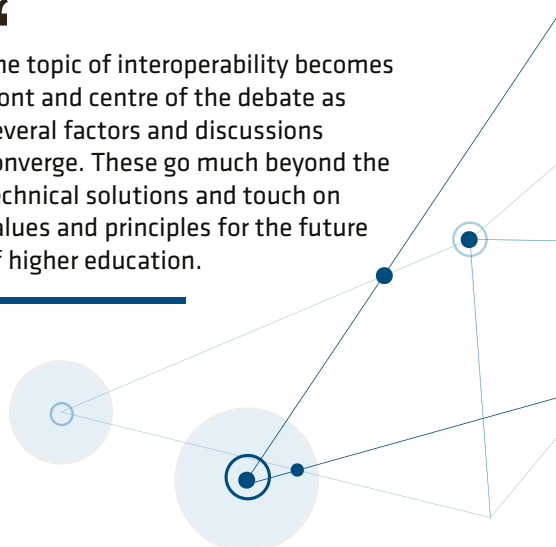
In Sweden, for example, universities have, for decades, worked with a common student information system, [LADOK](#). This system allows for mobility of students between institutions across Sweden, facilitating individualised study pathways but keeping administration of the mobility within the home institution.

Another example is Finland, where the [DIGIVISIO](#) project has the ambitious goal to create 'a new era of learning where each of us can learn more easily and flexibly, thus accumulating the expertise needed in a constantly changing world' by giving access and guidance to educational resources.

In Germany, [Mein Bildungsraum](#) (My learning space), is being developed as a space to enable individual learning journeys as well as facilitating interoperability between both different institutions as well as different educational levels, for example secondary and tertiary education.



The topic of interoperability becomes front and centre of the debate as several factors and discussions converge. These go much beyond the technical solutions and touch on values and principles for the future of higher education.



National-level initiatives in interoperability have, in many cases, advanced to the stage where systems are operational and embedded in the everyday practices of higher education professionals. This raises questions as to how the successful national efforts and the wider European-level moves towards interoperability can complement each other

In sum, the topic of interoperability becomes front and centre of the debate as several factors and discussions converge. These go much beyond the technical solutions and touch on values and principles for the future of higher education.

# Chapter 2: Making it work

## Implementation of the system

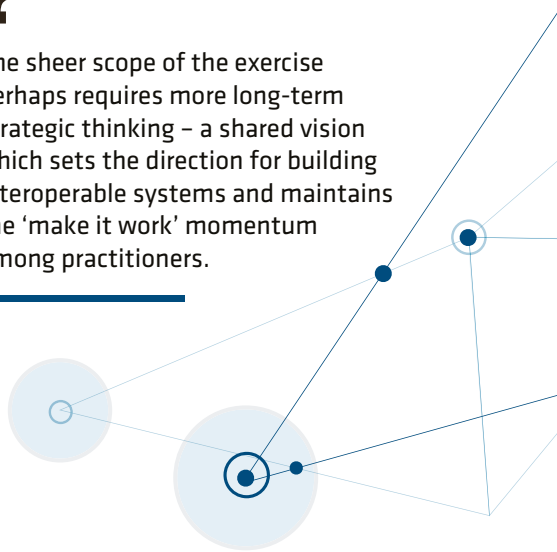
Implementation of interoperable, virtual campuses is still at an early stage. At this point, ‘virtual campus’ refers to little more than a common space to access a (usually limited) number of resources, courses or modules, across a European university alliance. Alliance partners have, in the first instance, focused on establishing common course catalogues and processes to enable exchange of information across institutions. Some are making steady progress, thanks largely to the constructive ‘make-it-work’ spirit that prevails among alliance partners. But building a common course catalogue represents just one step towards the bigger ambition to establish fully-interoperable, virtual campuses that function throughout the lifecycle of the student.

In seeking insights on the vision and pathway towards developing virtual campuses, EUA interviewed practitioners whose everyday role centred around facilitating exchange between partner institutions. It was understood from these conversations that, as shared objectives, developing common course catalogues – and ultimately, virtual campuses – was dependent on the cooperation and commitment of all alliance members. Beyond the technical and strictly procedural challenges, which are being thoroughly mapped through the [European Digital Education Hub](#), it has become apparent that other obstacles persist. The more pertinent and commonly-experienced issues are presented here, as indicators of how progress is advancing and where interoperable solutions might solve some of the problems encountered by alliance members.

### TOWARDS A COMMON COURSE CATALOGUE – VISION AND APPROACH



The sheer scope of the exercise perhaps requires more long-term strategic thinking – a shared vision which sets the direction for building interoperable systems and maintains the ‘make it work’ momentum among practitioners.



To facilitate mobility between partner institutions, one of the more immediate and commonly-held objectives of alliances is to establish a common course catalogue. However, the steps towards developing catalogue content and making the platform accessible to – and workable for – the various institutional communities within the alliance raises questions around ownership and governance of the process.

As a key element of an alliance’s virtual campus, development of a common course catalogue is typically financed by EU project funding. As such, the process – and decision-making within this – can tend to follow a certain ‘project-logic’. Responsibility for the project’s various work packages is typically distributed across the alliance,

and feedback mechanisms are established to enable systematic consultation with partner institutions. The approach seems to work in that an alliance partner with expertise or capacity in a certain area – the technical elements, for example – can drive related work packages forward. The challenge, however, is ensuring the perspectives and priorities of all potential ‘end users’ – students, faculty and administrative staff across the alliance – are represented.

Building a functioning common course catalogue and ultimately, a virtual campus represents a significant undertaking. Taking a project-based approach can be effective, in the short-term, in that it steers activity towards clear and immediate objectives. However, the sheer scope of the exercise perhaps requires more long-term strategic thinking – a shared vision which sets the direction for building interoperable systems and maintains the ‘make it work’ momentum among practitioners.

In working toward interoperable systems, the governance challenges of the EU<sup>1</sup> are often compounded by technical obstacles and cultural differences. Variances in academic calendars, reporting obligations, degrees of university autonomy and national approaches to implementation of the General Data Protection Regulation (GDPR)<sup>2</sup> all determine how easily – and successfully – alliance partners can move towards a more seamless system for exchange.

Progress among alliances – and among institutions within alliances – is often uneven and non-linear. Some alliances have advanced to the stage of having fairly well-developed virtual campuses, accessible not only to students and staff but also to citizens. Others are in the initial phase of building infrastructure with a common entry point for users. These factors can determine whether users (faculty, students and administrators) rely directly on a new central platform (sometimes referred to as a joint virtual campus) or whether they continue to default to the institutions ‘own’ systems, considering the joint platform an additional administrative layer.

Similarly, in some alliances, the common course catalogue is made within certain faculties and limited to the offering that all members of the alliance agree to share. Others rely on bottom-up processes where academic staff who want to use the common platform can contribute. In both cases, the outcome can be positive in that it allows for innovation in curriculum design, course delivery and potentially, assessment processes across institutions. As new educational offerings are being developed across borders and between partner institutions, many would advocate for increased visibility of common courses within the local systems as opposed to isolating these to a standalone ‘alliance only’ catalogue.

## LIMITED AUTOMATION AS A BARRIER TO SCALE

While huge strides have been made to streamline exchange across alliance partners, the reality, for most, is that operationalising a common course catalogue requires a huge amount of manual data processing. With a limited number of learners and restricted choice on common courses, the current manual system can still work. However, if the ambition is to scale up to accommodate more learners and to allow for extensive choice between common courses, alliances have to take one of two routes: allocate more (human) resources or, more ambitiously, move towards automated data exchange between institutions.

As it stands, the relative absence of automation can be attributed to a number of factors. In the first instance, the (sometimes) low maturity of systems and uneven use of common standards can inhibit progress towards interoperability. In theory however, these are technical obstacles that can be overcome if, among other factors, alliance partners can agree on shared standards and processes.

1 Estermann, Thomas et al., 2021, *The governance models of the European University Alliances*, EUA

2 Claeys-Kulik, Anna-Lena et al., 2022, *The European Universities Initiative and system level reforms*, EUA

In addition to agreement on common standards, harmonisation of the procedural and operational elements of mobility would significantly enable the quick and seamless exchange of information. In practical terms, a student navigating the process is required to access the virtual campus, apply and register for a course, attend the course, and have the ECTS recognised at their home university. These steps are relatively universal; however, a 'mis-match' in procedural elements between institutions – for example, the misalignment of registration windows – can create obstacles for mobile students. While these are not necessarily insurmountable, the fact that some elements of university operations are bound by national or system-specific requirements means the potential for flexibility or standardisation across alliance partners is sometimes limited.

Another consideration in moving towards common course catalogues, based on interoperable systems, is the diverging approaches to data storage. In most cases, data resides at individual universities rather than at a central level. This divergence among member institutions arises because some favour local system storage, while others opt for cloud-based services due to limited IT department resources. Both solutions appear to work well and, in terms of universities potentially adapting their approach, neither has emerged, as yet, as the clear favourite.

Despite the many and varied challenges experienced by practitioners, the fundamental structures for exchange exist and the appetite among alliance partners to streamline processes is growing. The largely manual steps involved for registration and identification of students followed by verification and validation of documents – each one accompanied by a back-and-forth thread of email correspondence – underlines the need for automating exchange of information. In order for alliances to be able to handle – and encourage – mobility at scale, their virtual campuses need to be based on interoperable systems built on a foundation of mutual understanding and trust between partners.

## **TRUST AS A PREREQUISITE FOR RECOGNITION**

The recognition of credits depends on the home university and, particularly, on the faculty. Often, a study coordinator will approve a course before the student signs up via the common platform or will, at least, act as a moderator between students and lecturers responsible for the recognition of individual courses. For learners who use common course catalogues to add to already established programmes, this does not necessarily result in a barrier to scalability.

Having even rudimentary technical processes to provide information and access facilitates the kind of credit mobility that higher education institutions are used to. However, having well-ordered data and processes will not be enough to solve challenges in recognising credits: credit recognition often requires individual trust that the learning outcomes attained elsewhere are compatible with the programme in the home institution.<sup>3</sup> Standardised presentation of data will not solve this trust issue. That said, instruments and processes for recognition – such as the learning agreement – have the potential to reduce the manual workload, if populated with data that is organised and formatted to be mutually comprehensible among partner institutions.

For some alliances, credits are put in the Europass wallet or a new alliance wallet of the student. However, it is not always feasible for students to see their credits recognised by their university. The experience with course registration and ECTS recognition also depends on the learner's status, such as whether they are a joint programme student. Joint programme students can benefit from materials and courses available at the universities involved in the programme since they are automatically enrolled in all participating universities.

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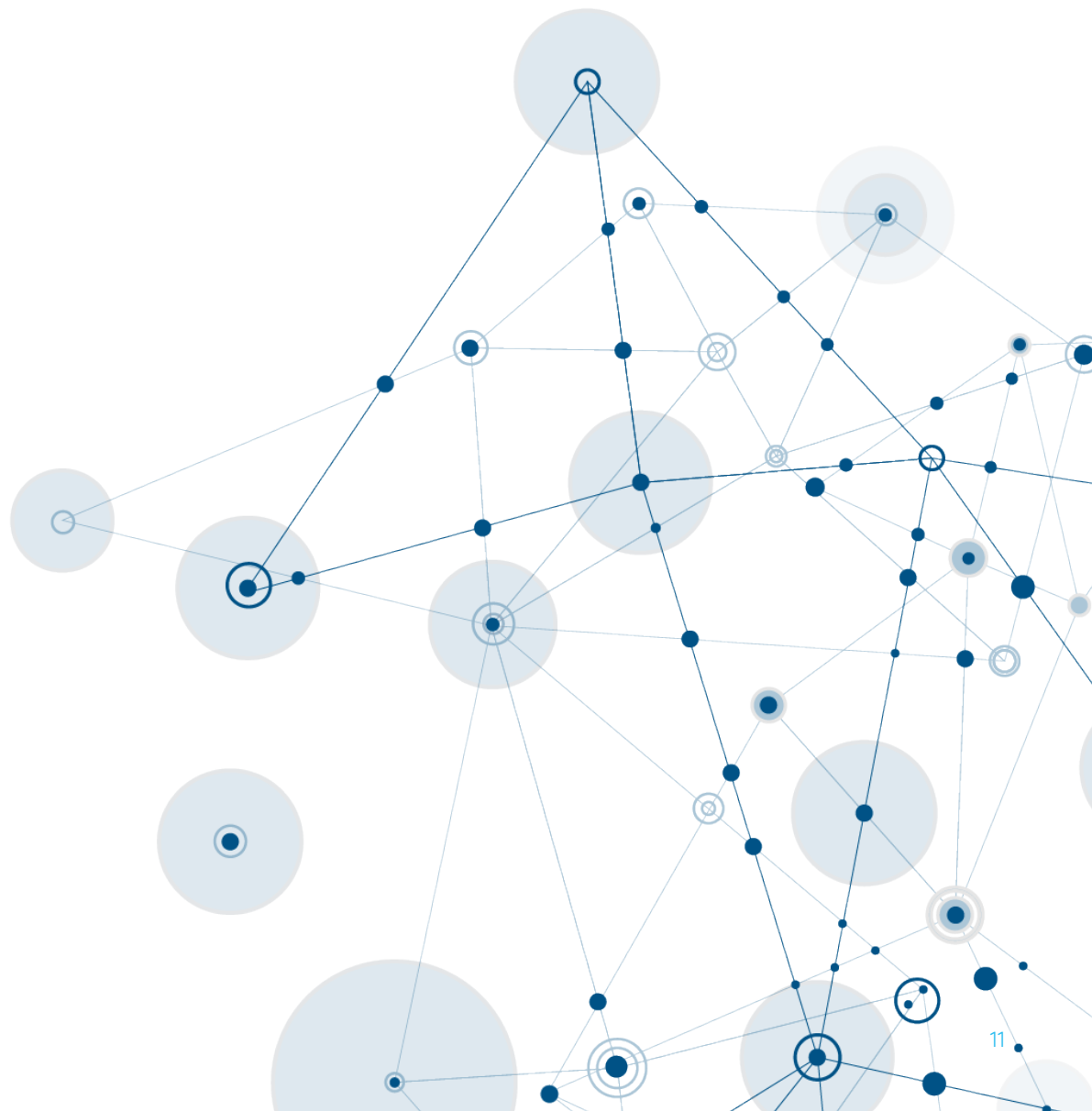
3 Gaebel, Michael et al., 2024, *Trends 2024*, EUA, p. 77

## ‘MAKE IT WORK’ MENTALITY

Although there are some barriers related to system ownership and manual workload, the general ‘make it work’ mindset demonstrates a culture of willingness and appetite for further collaboration between institutions. This ‘make it work’ mentality is instrumental in creating momentum within alliances and for interoperability in Europe more generally. However, the approach creates a tendency to implement what is doable in the here and now; problems are solved at a small scale and local level with little consideration of their link to the bigger challenge of scaling the system up.

Although the governance model for decision-making is highly dependent on the project-logic of the EUI, alliances are receptive to addressing concerns and implementing necessary changes based on user feedback. Through collaborative feedback mechanisms, universities provide input on system design and functionality. This iterative process reflects a responsive and proactive approach to enhancing system interoperability.

The iterative process also underlines that, in order to enhance system interoperability, common data standards are needed to provide the technical foundation. While some alliances have taken steps towards developing common standards for the (limited) purpose of exchange between partner institutions, few have looked beyond this. A longer-term consideration – and one that is addressed in the coming chapters – is the applicability of intra-alliance cooperation mechanisms to alliance-to-alliance exchange or indeed, exchange across the sector more broadly.



# Chapter 3: Standards and guidance

## Prerequisites for advancing interoperability

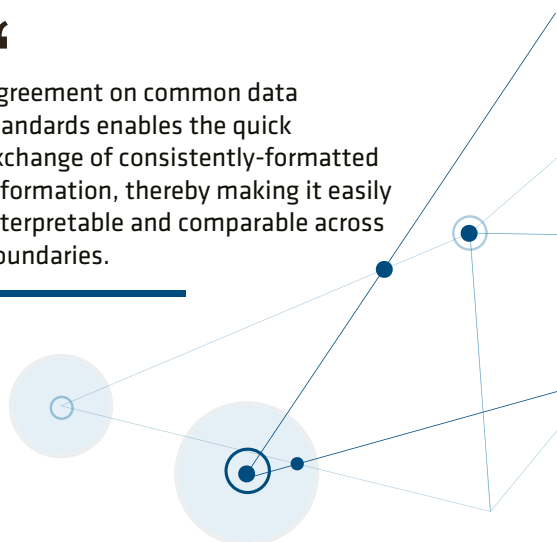
The expansion of the EUI, and the ambitious targets for mobility set within alliances, have drawn attention to interoperability as a core priority for institutions. The converging political, legal and ideological factors, coupled with the obstacles to implementation (outlined above), have added urgency to key questions in the debate: if and how interoperability can be made a reality, and whether this could extend beyond the alliances to Europe's wider network of higher education institutions. As these questions move up the political agenda, and alliance-driven initiatives to advance interoperability gain traction, it becomes apparent that three fundamental parts of the puzzle are missing:

1. guidance for universities towards a broader vision,
2. the technical fundamentals to support interoperable systems (i.e., common data standards) and
3. professional vendors, with the capacity and mandate to implement these standards into robust and sustainable software solutions for acceptable license fees.

### MAXIMISING DATA AS A RESOURCE FOR EUROPE (AND ITS UNIVERSITIES)



Agreement on common data standards enables the quick exchange of consistently-formatted information, thereby making it easily interpretable and comparable across boundaries.



Data standards refer to methods of organising, documenting, and formatting data to facilitate data aggregation, sharing and reuse. Agreement on common data standards enables the quick exchange of consistently-formatted information, thereby making it easily interpretable and comparable across boundaries. In the context of Europe's university sector, common standards would, if universally adopted, lay the foundation for interoperable systems that allow for seamless exchange of institutional data. Beyond streamlining the administrative processes behind mobility and credit recognition, common standards hold the potential for a better connected and more integrated European higher education system (see Outlook chapter below).

The [EU Data Strategy](#) recognises the value of data as an essential resource for economic growth, competitiveness, innovation, and societal progress in general. Yet, without common standards, data are largely intra- rather than inter- operable, meaning that their value is limited to a specific purpose. Within the university sector, institutional data are most often collected and organised for reporting purposes; externally, this feeds into data collected by national agencies or education ministries and internally, it supports strategic decision-making among institutional leaders. Typically, systems and standards that

facilitate this reporting function (and obligation) of institutions are prioritised, leaving limited scope and resources for universities to develop common standards that would support data exchange with their European partners.

The challenges are not unique to the higher education sector. Barriers to fluid exchange between the EU's public administrations not only impede citizens' access to services but also inhibit cooperation, thereby compromising European cohesion and competitiveness in the longer term. To counter this and to promote a harmonised approach across the EU, the [Interoperable Europe Act](#) was launched in April 2024. While the act does not impose standards, it sets the governance structure for decisions to make European public services interoperable. This complements a suite of other EU-level regulation governing activity in the digital and data spaces, for example GDPR and eIDAS. The challenge for Europe, however, in designing and implementing data-related legislation, is to ensure its citizens' rights are protected as their data is harnessed to bolster European cooperation and competitiveness.

## CHALLENGES AND SOLUTIONS FOR UNIVERSITIES

While the adoption of common data standards in other sectors – health, for example – is well established, the absence of consensus and lack of cooperation on commonly agreed standards in Europe's higher education sector means that the digital bridges connecting universities are often built ad hoc or impromptu. So, what are the issues at the root of this? And what solutions – improvised or carefully designed and implemented – can reinforce these bridges?

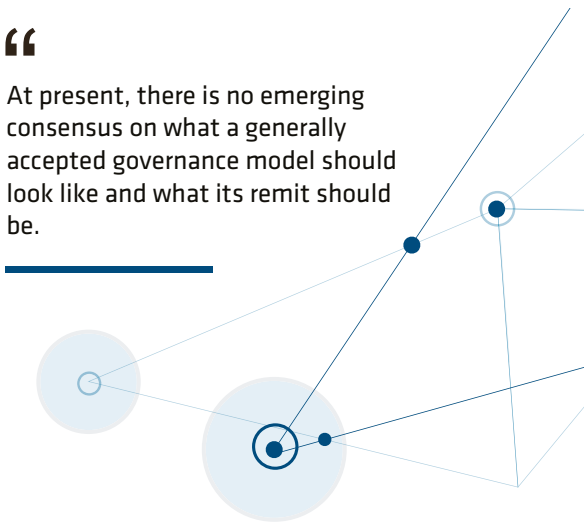
In the first instance, the challenges go beyond the purely technical: both the organisational and legal dimensions of developing common standards have emerged as serious – if not insurmountable – obstacles. But it is, perhaps, the semantic layer – and the different interpretations of terminology relating to data – that poses the biggest challenge for universities. One practical example is the denotation of dates – whether to indicate registration, matriculation, graduation or differences in academic calendars – and the need to harmonise this to allow for reliable and meaningful exchange and comparison of data across institutions. On a more complex level, standards for description and classification of the content of educational modules present a challenge, demanding a high level of understanding and agreement between the partners using the standard.

In the absence of commonly used standards in Europe, universities have, in many cases, resorted to other solutions. Some countries have been resourceful enough to develop a national standard to facilitate exchange of data between institutions operating in the same system. Other initiatives, such as the [Digital Futures project](#) in the UK, point to a more concerted multi-sector approach to harnessing national data.

Alternatively, non-profit organisations have proposed different standards, notably the US-based 1EdTech, which is developing an interface, the [Edu-API](#), aimed at facilitating data exchange between institutions. On the national level, the Dutch [Open Education API](#) likewise proposes a system for accessing and sharing data from higher education institutions. At the European level, the European Commission has supported the [European Learning Model \(ELM\)](#) and the [ELMO standard](#) (Data Model for Interoperability of Learning Opportunities, Qualifications, Accreditation and Credentials in Europe), which aims to describe all aspects of learning, from learning opportunities to accreditation and credentials. However, there has been no consensus on pursuing one of these solutions, and there is a worry within the community that too many standards and interfaces will be developed in parallel, as institutions work towards interoperability.

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At present, there is no emerging consensus on what a generally accepted governance model should look like and what its remit should be.



The existence of standards and projects to solve the technical side of interoperability reflects the previously-referenced ‘make-it-work’ attitude among higher education professionals. But the approach comes with certain limitations: national standards, while effective for system-level exchange, are different in scope. This means that unless there is a Europe-wide move to adopt one or other established national standard and agree on common processes, these will do little to advance interoperability beyond national borders.

One major challenge here is the governance model, which prescribes who takes the decisions on how the standard is developed and implemented. At

present, there is no emerging consensus on what a generally accepted governance model should look like and what its remit should be. The ELM is heavily dependent on the European Commission, while decisions regarding Edu-API are made on the basis of an entity outside Europe. These have grown more or less organically and none have gained universal acceptance and legitimacy.

The adoption of commercial standards may offer a more neutral solution to governance for example, anchored in EU institutions. In practice, this would be the ‘fairest’ approach in that it would require everyone making minor – but not dramatic – adjustments to ensure compatibility of systems, provided that the commercial systems available match the required functionality of the target processes. But relying on standards set by private, for-profit companies that are subject to the whims of the market often creates uneasiness among institutions and their wider network of stakeholders. This stems from the level of their dependency on these commercial providers because of their semi-monopolistic market position. This approach would also contradict the ideals of open solutions, which place the user rather than the provider in the centre of the model.

What is more, a dependence on commercial standards – developed by non-European technology companies, for the foreseeable future – raises more fundamental questions around the ownership, governance and overall vision for transnational cooperation in European higher education.

## **EVOLVING UNIVERSITY MODELS - THE DEMAND FOR MORE FLEXIBLE LEARNING PATHWAYS**

Universities are tackling the obstacles to interoperability and exploring potential solutions against a backdrop of change. Demographic shifts and the demand for more flexible learning have prompted a rethink of traditional degree pathways and the university model, more broadly.

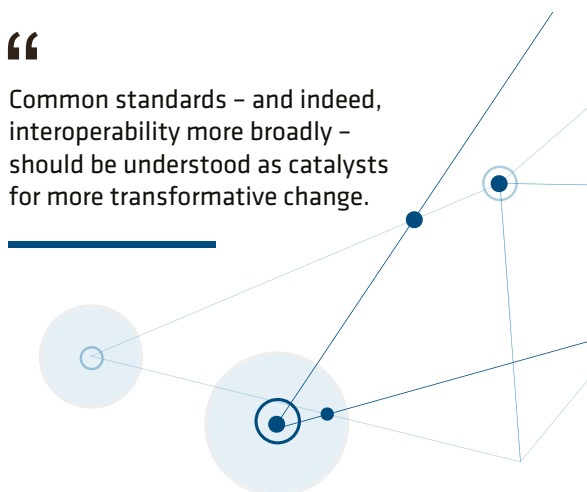
Previously referenced initiatives, such as the European Student Card and the eIDAS regulation, have brought into focus the principle of ‘learning belongs to the learner’ and the notion that credentials should be stackable and portable across institutions and national borders. The EUI, and the ambition to establish common course catalogues and seamless credit recognition between alliance partners, has reinforced this message.

Similarly, universities' response to the demand for lifelong learning has broadened their remit and relevance to a wider cohort of the population. While generally, there seems to be acceptance of – and enthusiasm for – institutions adapting their offering and processes to accommodate more diverse profiles of learners, it is increasingly recognised that, for many institutions, the current (mostly manual) practices for processing learner information are not sustainable. In order to do this at scale, there need to be robust and automated procedures for data processing and exchange, based largely on interoperable systems and ideally, on common standards and processes.

## WHERE TO NEXT – THE NEED FOR VISION AND GUIDANCE

“

Common standards – and indeed, interoperability more broadly – should be understood as catalysts for more transformative change.



On a technical level, development of common standards is possible, and evidently, there is a distinct motivation to overcome the other obstacles currently impeding interoperability between Europe's higher education communities. Yet, without a well-articulated vision on how to make this a reality, and the political will to support this, institutions often find themselves at an impasse.

Some would argue that the vision – and guidance on how to achieve it – should come from within the community, the logic being that this is where the expertise is and that this approach keeps ownership of the process (and its outcomes) in

the hands of the most immediately invested stakeholders – the institutions and their communities of learners, teachers and professional staff.

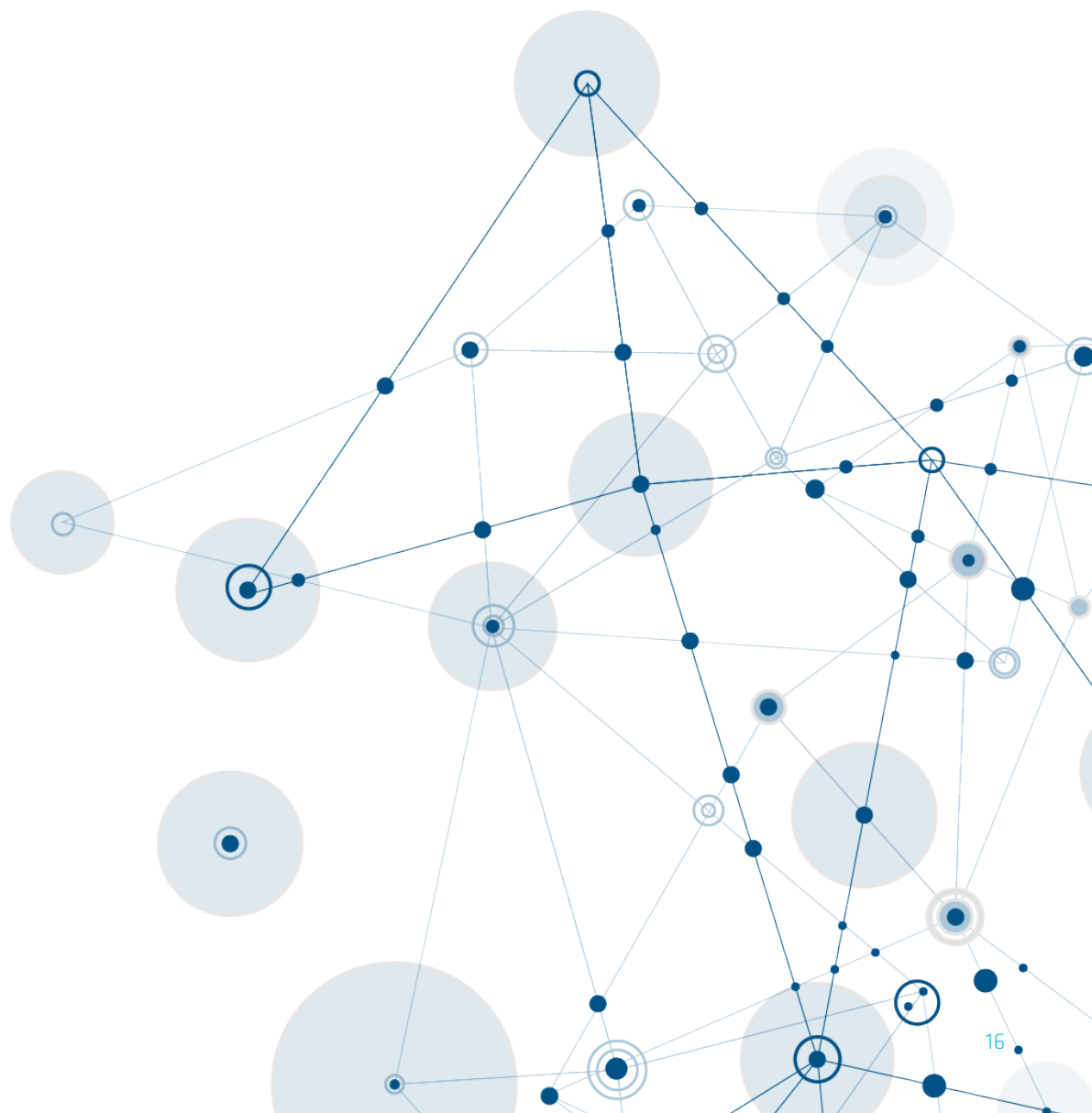
Currently, this logic seems to prevail, and is manifest in the activities of the Interoperability group, supported by the EDEH. The group, which brings together representatives from across the EUI alliances, has made huge strides in mapping progress among alliance partners. This community-driven initiative continues to gather momentum and highlights the many successes of (technically enabled) alliance cooperation. But commendable as they are, these success stories are often isolated cases; they tend to respond to an immediate problem, with limited scope to transform cooperation at a broader level. The question remains as to how initiatives can be scaled up as alliance activity – and the consequent demand for mobility and flexible learning – intensifies.

Some would argue that a more top-down approach is needed. An overarching vision for interoperability, complemented by a well-defined pathway for a politically driven implementation across Europe, could, potentially, trigger action among member states. The promise of compatibility of systems with European counterparts might just provide sufficient motivation for adjustments to be made within the more local context. But those sceptical of a top-down mandate would question whether the EU's competences stretch that far, and whether such an approach would generate resistance – as opposed to buy-in – among its member states. Another path could be a governance structure that is agreed upon by the university

sector. Such a structure could manage a commonly adopted standard or interface as well as agree on guidelines for its usage also beyond the sector, for example by developers or employers.

What is certain is that, whether the impetus is initiated top-down or bottom-up, there are practical questions to address: What would the governance model for common standards look like? Who would be responsible for developing these in a robust and sustainable manner? How would the costs be shared? and importantly: How would the principles of openness and digital sovereignty be enshrined in the vision and implemented in the process?

Rather than the end goal, common standards – and indeed, interoperability more broadly – should be understood as catalysts for more transformative change. Without them, cooperation among partners will advance in siloes, with technical solutions – successful as they might be – entirely removed from any wider vision for the future. But there are other plausible trajectories for university cooperation, ones that could make for a radically changed experience for future learners.

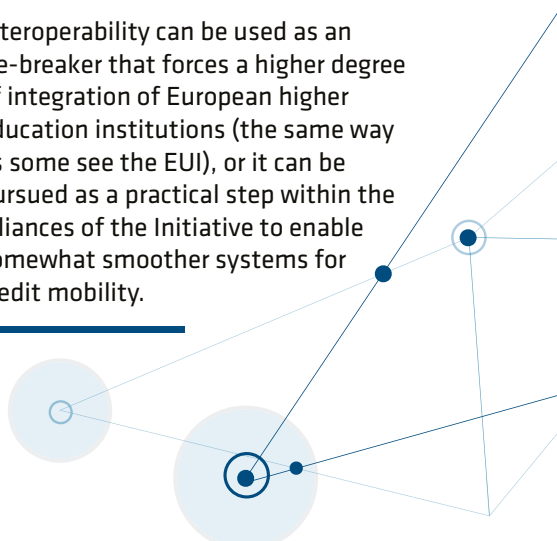


# Chapter 4: Outlook

## What futures for interoperability?



Interoperability can be used as an ice-breaker that forces a higher degree of integration of European higher education institutions (the same way as some see the EUI), or it can be pursued as a practical step within the alliances of the Initiative to enable somewhat smoother systems for credit mobility.



The topic of interoperability can by no means be reduced to a purely technical discussion. It entails very deep choices about the nature of higher education and the European higher education system. As interoperable, cross-border and cross-institutional systems have the potential to create a radically more open and flexible higher education system, there are political choices to be made as to how to maximise this potential. Interoperability can be used as an ice-breaker that forces a higher degree of integration of European higher education institutions (the same way as some see the EUI), or it can be pursued as a practical step within the alliances of the Initiative to enable somewhat smoother systems for credit mobility. Some also see this as a potential for a fundamentally different

higher education system, with 'one European university' where learners can freely choose modules of learning across the continent.

The following section is highly speculative, but it is important to imagine where interoperability could go in the future. The options presented might seem far-fetched given the present limits of interoperability, but it would be wrong to assume that the obstacles encountered at this point set the long-term limits for interoperability and access to resources across institutions and borders. During the research for this publication, EUA found no obstacles that were either impossible to overcome or outright implausible in the medium-long term future. This does not mean that any of these futures are probable. Establishing resilient European-wide interoperability, in particular, will require political decisions that are not on the table today. However, this should not preclude future-oriented thinking and discussion on the topic: it is already imagined by many within the community working on interoperability, and it merits a more thorough exploration.

Regarding the context of interoperability, the issue of convergence is important. There are strong political trends as well as technical possibilities, which further the development of interoperable systems.

As a thought experiment, it is helpful to imagine at least three situations to play out within the next five to ten years:

1. where the present situation remains fairly unchanged;
2. where university alliances create scalable, yet siloed, systems between their members; and
3. where a truly interoperable system emerges at the European level.

## **NO SUBSTANTIAL CHANGE**

In the case that there is no substantial change to the present implementation of interoperable systems, this will be a limited add-on to programmes anchored within one institution. The capacity for the number of learners making use of the option will be limited, and applicable only to a small number of modules. These modules will either be a collection of bottom-up processes, driven by a coalition of the willing, or they will be based on agreements among members of an individual alliance that decide to offer certain modules for specific disciplines.

This will give opportunities for learners who want to earn credits from different institutions, provided that they are in programmes with joint course catalogues and procedures to ensure that credits from courses taken with partner institutions are recognised. There is a slight advantage here for programmes that include teaching of basic skills within a discipline, for example advanced mathematics or computer programming. It will also provide spaces for teachers that want to experiment with setting up common courses, and it will facilitate innovation in learning and teaching for those that are interested.

The development of common courses and joint catalogues will likely cement the links between institutions within an alliance, particularly those that are active in using the possibilities that interoperability bring. However, small-scale initiatives could risk continuing the present situation of unclear governance and possibly perpetuate the problems that come with a dependence on project funding.

## **UPSCALING WITHIN THE EUROPEAN UNIVERSITIES INITIATIVE**

If the present developments are scaled up, this will be a qualitative change for learners and teachers in the alliances. Taken to its extreme (and admittedly being rather speculative), this scenario would see universities in alliances develop actual common course catalogues where programmes consist of modules co-created by alliance partners or, alternatively, programmes assembled as a collection of high-quality modules, each one already delivered at one of the partner institutions. This would draw on the strengths of the individual institutions to build cohesive programmes delivered between them, thereby freeing up capacity and eliminating the need for comparable programmes run in multiple partner institutions. Thousands of learners would have access to these extensive course catalogues from many institutions, and programmes would be conceived and developed at the inter-institutional level.

The difference between higher education institutions that are in an alliance and others would grow quantitatively as well as qualitatively: Learners in alliances have access to many more options, and these would be conceived from the start as cross-border, cross-institutional modules. In this situation, studying in an alliance would be a significantly different experience than studying just in one institution. It would certainly create a stratified system in Europe.<sup>4</sup>

In this case, alliances would choose common standards or interfaces to achieve a high degree of automated exchange between the institutions, but they would remain siloed. One reason for this could be that the alliances form the basis for the governance behind development, implementation and quality assurance of programmes, and there would be no umbrella structure to promote interoperability across alliances. Another reason could be that the commonly accepted technical solution that allows for alliance-to-alliance interoperability does not emerge.

There are several ways that the consequences for learners could play out. It could simply be more choice for everyone within their study programmes, with more modules from different institutions but without a major restructuring of programmes within the individual institutions. Conceivably, study programmes

<sup>4</sup> For an exploration of this future see Claeys-Kulik, A.-L. and T. Jorgensen, 2024, *What if? Exploring possible futures of transnational cooperation for Europe's universities*, EUA, p. 36-37

could by default be structured around modules from different institutions. Learners could, for example, do a common introduction to Modern European History that is offered across the alliance, and then a department in one member institution would offer a specialisation on European expansion, while another would offer a course on Wars of Religion or economic history of the period.

If alliances begin to develop common study programmes (perhaps as formal joint programmes), it could also mean a more top-down approach to innovation in learning and teaching. One could imagine that this would be a learning experience for academic staff in disciplines that have different traditions in different countries, but also that, if embraced, it could lead to a boost for innovation in, for example, hybrid or asynchronous delivery.

Such thorough changes in the delivery of study programmes would certainly need a very high degree of sustained leadership support from all participating institutions, which would again probably need a governance model that goes well beyond the present project logic. Having large-scale integrated common course catalogues would need extensive learning agreements as well as strong coordination of quality assurance, digital services and learning and teaching strategies across the alliance. This would include clear agreements regarding the requirements to have access to courses and recognition of the credits that are earned across the alliance. It would also likely need a high degree of alignment between the quality assurance systems in the different countries when it comes to accreditation of joint programmes.

## **UPSCALING BEYOND THE ALLIANCES**

If upscaling of interoperability happens beyond the alliances, so that learners have access to courses and modules from theoretically all of Europe's universities, this would evidently have radical potential for disrupting European higher education as a whole. It would also require radical structural changes in the European higher education system beyond solving technical challenges.

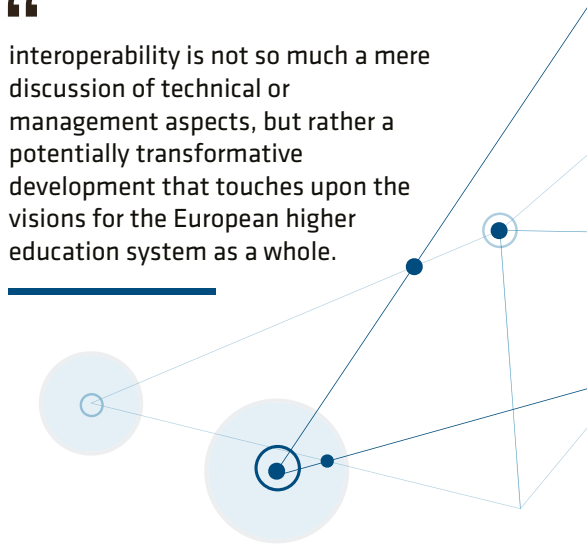
In a situation where courses are available across Europe, learners could have access to one, united European course catalogue. These courses could be on-line, hybrid or perhaps facilitated through virtual or enhanced reality; some could be as open as MOOCs, others small and exclusive. In this situation, a system of easy credit recognition that allows for flexible and stackable micro-credentials, also for lifelong learning, could be conceivable.

There would not be unlimited resources in such a system, so admission procedures would still be done by higher education institutions. The various forms of recognition that would be required for a smooth system would itself be a very thorny subject, requiring cultural shifts within institutions that go much beyond a technical solution of verifiable, digital credentials. Robust national measures and international collaboration to detect and counter education fraud, building on already existing European and national frameworks for accreditation and quality assurance, would be crucial too. So would be (further) increased use and visibility of the transparency tools used in Europe for making credentials internationally understandable, such as qualifications frameworks and ECTS. Even if higher education institutions continued to exist to manage the system, their role could be drastically changed as they would develop and provide many different kinds of learning in a context where there is access to similar offerings from other institutions. This could be done in a collaborative way, or it could happen in a highly competitive landscape, depending on the political and financial context.

A scenario where there are many different modules and courses available could be highly useful to promote lifelong learning. Modules and micro-credentials could be made available also for learners outside the institutions, creating students for life, learning everywhere and all the time. Credentials would be stored in a standardised format that could be easily read across all institutions and potentially

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interoperability is not so much a mere discussion of technical or management aspects, but rather a potentially transformative development that touches upon the visions for the European higher education system as a whole.



facilitate admission to courses and modules, developed to serve very large number of learners. This could lead to effectivization, as it would reduce the need for institutions to have many similar courses, typically on technical topics such as the basics of fluid mechanics or mathematics for physics or economics. These could be reduced to a few standard offerings used across Europe.

Another option would be for prestigious and well-resourced institutions to develop collaborative programmes with the best offer from a group of universities, perhaps integrating cutting edge learning technologies such as adaptive learning and virtual reality learning spaces. These programmes could be exclusive, with a very large base for recruitment of students and very strict entry

criteria. Different from the alliance-based programmes, these could be done with different constellations of partners according to programme, and they would not be limited to admitting students from a set number of institutions.

This level of flexibility might well undermine the EUI. Once the infrastructure exists for flexible cooperation at the programme level, there would be less need for partnerships at the institutional level. The technical standards or reference architecture would likely be managed by a European education standards body, overcoming the governance challenge. Standardising the data on students might possibly entail a European Higher Education Authority where institutions would report data on their activities.

Common authorities or agreements on data collection would mean a much higher degree of integration within the EU or within the EHEA, either through individual governments agreeing to establish common bodies dealing with recognition and data collection or through increased competencies at the EU level. This would certainly require that national governments find the political will to hand over their authority over higher education. This could also include the question of sharing the costs of maintaining such a system, which could be done via funding directly from the EU (with implications for European countries outside the EU) or through sharing the costs between individual states and systems.

Ethical choices become important in this system: for example, ensuring social inclusion and equity in an educational landscape that has a very large degree of freedom and few formal structures. Such a flexible system, enabling a largely self-directed educational pathway, would be favourable to learners who have the cultural capital to navigate a complex system of learning and choose the right courses. Such students are able to present their learning outcomes in a way that makes their learning journey meaningful for future employers. The system also favours learners with good digital skills. Learners who do not have this knowledge might struggle to understand the system, what is expected and what is required to realise their ambitions. There would need to be high quality and available guidance for all in order for the system to be equitable.

These sketches of possible futures demonstrate how interoperability is not so much a mere discussion of technical or management aspects, but rather a potentially transformative development that touches upon the visions for the European higher education system as a whole. This is only the beginning of a much larger discussion about the digital transformation of higher education and society at large, to which we hope we have contributed with this briefing.

The European University Association (EUA) is the representative organisation of universities and national rectors' conferences in 49 European countries. EUA plays a crucial role in the Bologna Process and in influencing EU policies on higher education, research and innovation. Thanks to its interaction with a range of other European and international organisations, EUA ensures that the voice of European universities is heard wherever decisions are being taken that will impact their activities.

The Association provides unique expertise in higher education and research as well as a forum for exchange of ideas and good practice among universities. The results of EUA's work are made available to members and stakeholders through conferences, seminars, websites and publications.

EUROPEAN  
UNIVERSITY  
ASSOCIATION

Avenue de l'Yser, 24  
1040 Brussels  
Belgium

T: +32 2 230 55 44  
[info@eua.eu](mailto:info@eua.eu)  
[www.eua.eu](http://www.eua.eu)

