



Report: Overview at EU level

Mapping the digital readiness and resilience of HEIs in response to the COVID-19 crisis in EU in the context of:

Governance and enabling services

Teaching and learning practices and infrastructure

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Table of Contents

1. Executive Summary	0
2. Pre-Covid-19 Status Quo of digitalisation of HE/VET/LLL in EU.....	0
2.1. Policy and practice at EU level.....	4
2.2. Drivers and motivators.....	5
2.3. Barriers and obstacles	6
3. During/Post-Covid-19 Status Quo of digitalisation at EU level	8
3.1. Policy and practice (national/federal, regional, local)	8
3.2. Drivers and motivators.....	10
3.3. Barriers and obstacles	11
4. Future Outlook and Opportunities.....	13
5. Conclusions.....	14
6. References.....	0

1. Executive Summary

The current document provides an overview of the EU policies, motivators and barriers with regards to the digitalisation of Higher Education (HE), Vocational Education (VET) and Life-long Learning (LLL) programmes prior and after the COVID-19 pandemic. The past decade the EU launched several frameworks in this area and funded various projects keeping the issue in the agenda across the Member States. The report includes overview of data related to strategic planning, quality assurance, local innovations and other areas with regards to the status of digitalisation in these sectors prior to the pandemic. Different actions were in place and the 3 sectors had already started their digitalisation process prior to the COVID-19 pandemic. However, many of these actions were characterised sporadic without clear prioritization and follow up with the Member States resulting in inhomogeneous progress, which for many it has been attributed to this very lack of central enforcing policies along with the particularities of each country.

Following the COVID-19 pandemic the EU stepped up launching The Digital Education Action Plan (2021-2027) and other subsequent initiatives outlining the Commission's vision for high quality, inclusive and accessible digital education. Through the Plan, EU called for stronger cooperation at European level to learn from the COVID-19 crisis and to make education and training systems fit for the digital age (ICDE, 2020). This Plan and the crisis itself have motivated reflection and experimentation with innovations and changed paradigms, while the three sectors are now engaged in dialogue with the interested parties (teachers, faculties, communities etc.) to explore whether digitalisation "come to stay". The report reviews the results of surveys and other data related to the impact of the pandemic and perceptions with regards to the digitalisation of these 3 educational sectors.

2. Pre-Covid-19 Status Quo of digitalisation of HE/VET/LLL in EU

The past decade, a big number of policies and funding in the EU has been dedicated to the improvement of digital skills from a very young age until continuous professional development opportunities. The past decade EU has been considered a hospitable and competitive environment with regards to digitalization in education, commerce, policies etc., also due to the ambitious EU plan to build a single digital market.

HE: With regards to the issue of strategy and planning for digitalisation according to an extensive U-Multirank database (2020) the data show that prior to the COVID-19 pandemic only 17.6% of universities in the EU had a plan with specific measures with regards to digitalisation. 42.1% of EU universities had a section within their respective strategic plans in which online teaching was given some consideration. Approximately 40% of EU universities had no plan at all (Christiansen, 2021).

This is also confirmed by a 2013 survey conducted by the European University Association (EUA) which indicated that 63% of the surveyed universities had some kind of institutional approach for digitally enhanced learning and teaching. *Figure 1.* below shows the state across EU HEIs with regards to the existence of some policies at institutional level.

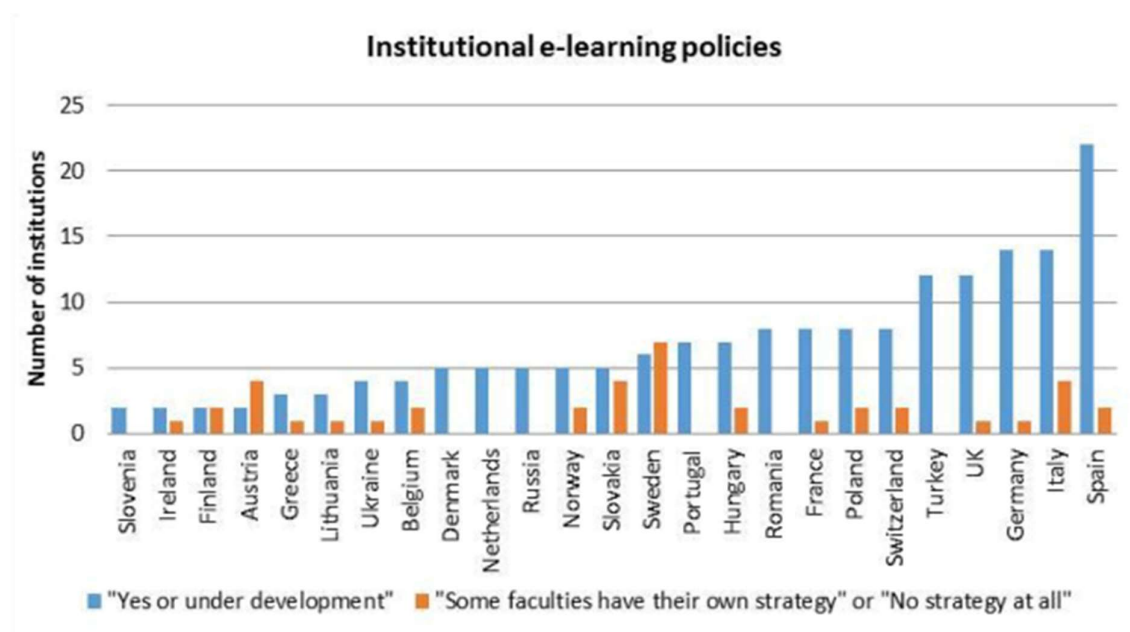


Figure 1. E-learning in European Higher Education Institutions results of a mapping survey, 2014.

According to the same 2013 survey from EUA, e-learning was not regarded as an issue of sufficient importance for Quality Assurance (QA). On that time, only 29% of the surveyed institutions had quality assurance procedures in place that include provisions for e-learning offer (Gaebel, Kupriyanova, Morais & Colucci, 2014).

The skills of the European workforce and its ability to navigate and take advantage of the new digital society is considered an indicator of the state of digitalisation of the European HE (Zalite & Zvirbule,



2020). Even though overall, the EU HEIs understand the need to align their research and offer with the digital society, we did not see all of them succeeding in this. In 2019, northern countries appeared more advanced with regards to the skills of their human capital to take advantage and be ready for the new digital society (Zalite & Zvirbule, 2020).

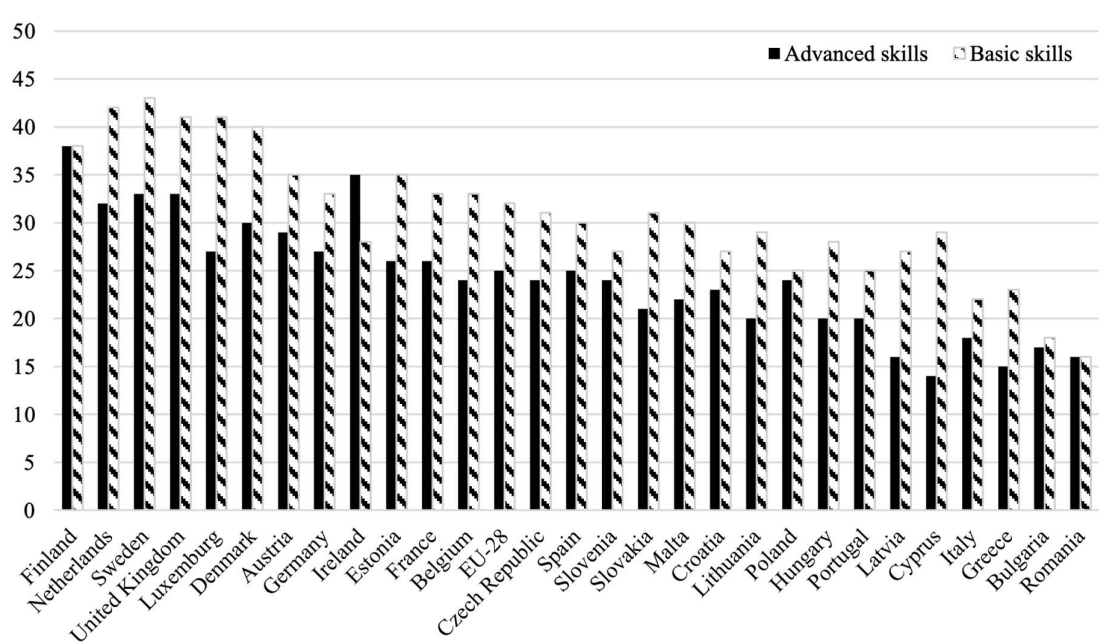


Figure 2. Advanced vs. basic human capital skills in the European Union Member States, DESI 2019.

With regards to the available infrastructure at the European universities, *Figure 3.* below provides an overview of the way the availability of the technical equipment has evolved from 2014 until 2020. Overall, basic infrastructure (e.g., open library access and online repositories) has been available at the European Universities for many years now, long before the COVID-19 pandemic. But other infrastructures such as personalised study portals and online student admission system either throughout the institution or in some faculties increased sharply in 2020, possibly because of COVID-19. However, more specialised infrastructure such as VLE and online labs are available in less than 60% of the responding institutions, with considerable differences between Northern Europe (84%) and Eastern EU countries (34%) and the Balkans (as opposed to 35%) (Gaebel, Zhang, Stoeber & Morrisroe, 2021).



Infrastructures in place from 2014-2020

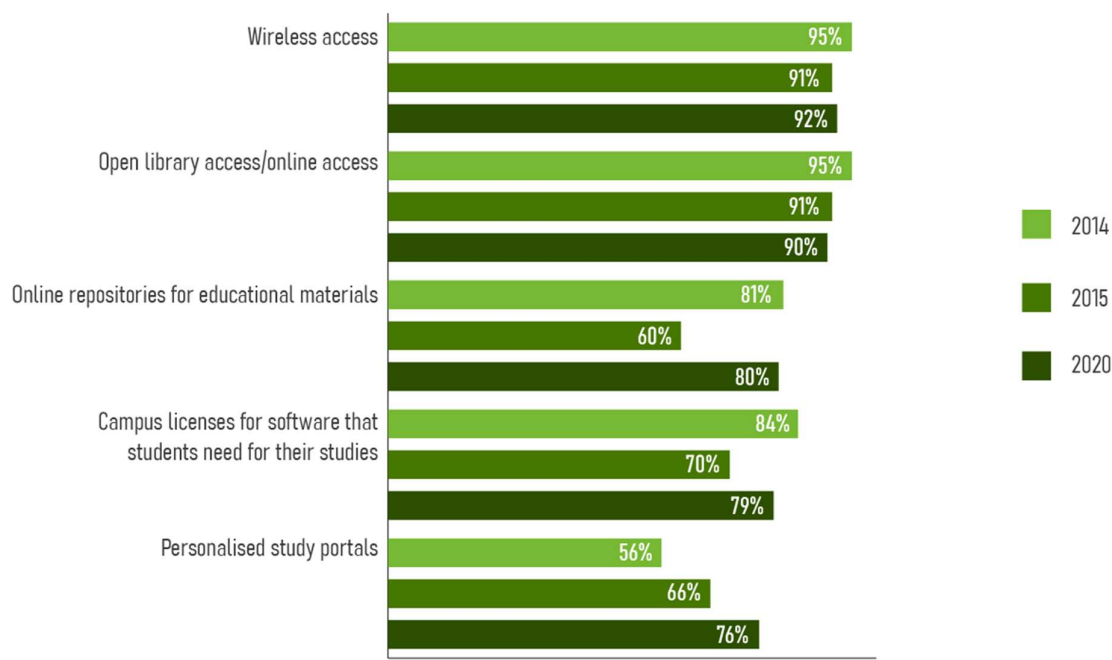


Figure 3. 2014 E-learning Study - Does your institution use any of the following types of educational resources? (online repositories for educational material) / Which of the following information technology (IT)-related systems does your institution use or provide? / Which of the following information technology (IT) systems or tools does your institution use or provide for its students? / Which of the following infrastructures can students access at your institution? (source: DIGIHE, 2021).

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- With regards to policy making and mapping, should EU consider the regional differences between most/less advanced countries and adapt the respective policies?

VET: VET in the EU has been considered an innovative sector, familiar with digital learning environments. This is mainly due to the close and continuous contact with smaller businesses and enterprises, often the drivers of innovation in the EU in this domain (EU Commission, 2020). At the same time, because of its strong attachment to the characteristics of its local environment the digitalisation of VET is considered sporadic and occurring in some EU countries, while European VET as a whole was not able to capitalise, structure and further develop the innovation and digital readiness that their partners in smaller business and enterprises were able to maintain (EU Commission, 2020).

In accordance with the EU Digital Education Action Plan of 2018, VET promotes the development of digital skills and competencies across Europe as a major objective on EU's agenda however, there is limited literature on the digitalisation of vocational education in Europe as a whole.



LLL: Similarly, the Index of readiness for digital LLL published in 2019 (*Figure 4.*), show that there is still work to be done. Even for the more advanced countries there is room for progress. In the case of LLL, we do not see the usual gap between northern and southern countries, but we do see uneven progress with some of the biggest EU economies (e.g., Germany) scoring poorly in the use of digital technologies in the LL sector (Beblavy, Baiocco, Kihoffer, Akguc & Jacquot, 2019). According to the authors of this report, some of this inhomogeneous progress does not have much to do with the economic situation in the country, which was the case for example for the HE. Even though there is no one-size-fits-all model, these results can be attributed partly to the existence (or not) of investments in the digital skills of the educators as well as the citizens', students' and the learners' trust on privacy issues online.

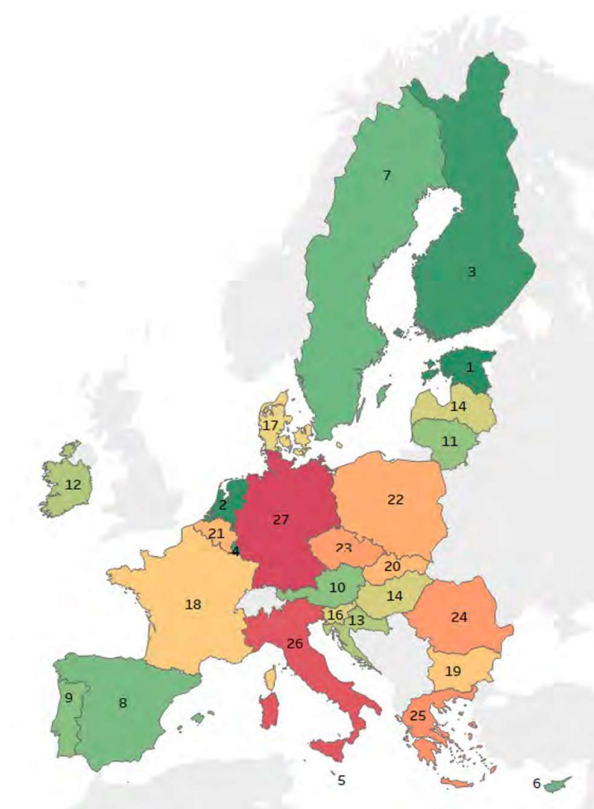


Figure 4. Overall results of digital learning index in EU-27

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- Is there a need for centralized EU VET & LLL policies or do these the sectors benefit more from localized approach?
- How can VET and LLL capitalise the innovation regarding digitalisation led by their partners (SMEs etc.)?
- Do privacy issues online create a barrier in the development of digitalisation of the VET and LLL sectors in EU?

2.1. Policy and practice at EU level

HE: Following the agreement of the Bologna Process (1999), digitalisation was established as a requirement for quality learning in HE. At EU policy level, except the Bologna process (1999) which “promised” to support the digitalisation of the European HE, there are limited initiatives/actions that focused only on HE in EU and digitalisation. Most of the plans before COVID-19 referred to education and learning in the EU area in general, with education provided at HE levels not being separated from the overall educational offer in EU.

In 2018, EU launched the Digital Education Action Plan, which set out three priorities:

- Making better use of digital technology for teaching and learning.
- Developing relevant digital competences and skills for the digital transformation.
- Improving education through better data analysis and foresight.

For HE this was considered a promising plan, which could take the Bologna Process further promoting *“a more open understanding and focus on digitalisation”* (Rampelt, Orr & Knoth, 2019).

The plan was built on the Renewed Agenda for Higher Education (2017) which emphasized the need to address the skills mismatch and the need for the digital enhancement of learning and also included provisions for the creation of a Europe-wide platform for digital higher education supported by Erasmus+. The idea was that best practices and lessons learned from the EU projects on HE and digitalisation can be gathered and promoted through a centralized platform. Online research for the purposes of this report did not clear up whether this initiative finally took place. However, some similar initiatives funded by the EU do exist online, for example, [d-learn](#) (European Digital Learning Network).

Even though various policy papers show that the digitalisation of the European HE has been in the EU’s agenda the past years, there is a lack of rather specific interventions and actions towards this. In contrast with the Bologna process for example, which put forward policies and practices that were built following ministerial meetings and agreements and moved the EU HE towards a specific direction.

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- Why digitalisation in HE at EU level has not been promoted by operational and targeted policies prior to COVID-19? As opposed to other HE policies?
- Is there a need for a centralized platform at EU level that gathers all initiatives for the digitalisation in HE?

VET and LLL: For the digitalisation of the VET and LLL sectors in the EU, we see different policies and frameworks launched prior to COVID-19 that aim mostly at defining and clarifying the digital competencies of today’s learners & their educators and related terminologies.

In fact, several such frameworks for education have been developed such as the [European Qualifications Framework](#) (set up in 2008 and revised in 2017), the [Europass](#) (set up in 2012) and the [European Key Competences Framework](#) (revised in 2018).

The Digital Competence Framework for Citizens, DigComp. 2.1. described eight proficiency levels, which apply to five competence areas; information & data literacy, communication & collaboration, digital content creation, safety, problem solving. All five competencies together are considered as enabling someone to use and interact with digital technology. DigComp was used for the development and strategic planning of digital competence initiatives at EU and national levels while it was considered that it combined successfully the digital skills with other key skills necessary for educators (Redecker 2017), (Beblavy, Baiocco, Kihoffer, Akguc & Jacquot, 2019).

The Digital Education Action Plan of 2018, also mentioned earlier for HE, was considered a turning point for the VET and LLL sectors. Under its 3 priorities, several actions were proposed to address digitalisation of education and training and include mentoring schemes for schools, digitally signed qualifications, “code-week” for schools and other.

The Digital Action Plan of 2018 was renewed in 2021 following the COVID-19 pandemic. It seems difficult to find online the original Plan of 2018, with most information on it coming from experts’ analysts. Overall, the discussion regarding EU policies and practices for the digitalisation of these sectors seems to start and end with the discussion regarding the e-competencies of the VET and LLL educators.

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- The benefits of creating several different frameworks for educators and the skills needed for digital learning
- The recognition and (self)assessment of those skills
- Do the EU VET and LLL frameworks and policies that refer to e-competencies frameworks only address the issue of digitalisation partially?

2.2. Drivers and motivators

HE: In a 2013, EUA surveyed 249 European HEIs and among others it investigated the main enablers and motivators for digital learning. The most popular answers are:

- flexibility of learning provision
- enhanced efficiency of classroom time
- more and better learning opportunities for distance learning and resident students
- e-learning is perceived as a means for collaborating within the institution and other international higher education institutions.

(Gaebel, Kupriyanova, Morais & Colucci, 2014).

In addition, in EU in general, the structure and management of universities offers the space to the faculties to experiment and innovate in the field of digital education. There is a high degree of autonomy and decentralization that allows this kind of innovation to take place (Hochschulforum Digitalisierung, 2015).

With EU being one of the most important and competitive providers of HE worldwide, it also worth investigating whether major international “trends” in HE have actually been motivators for change in this field. Following the appearance of MOOCs for example, and according to the same EUA survey (2013), several universities were inspired to look into this kind of platforms and prepare for the changes that they could induce in the future. However statistically speaking, there was no obvious correlation between the use of MOOCs and engagement in other forms of e-learning. Incentives and motivation for this discussion come mainly from institutional leadership and in some cases because of external funding (Gaebel, Kupriyanova, Morais & Colucci, 2014).

At the same time, other researchers were not convinced by the European HEIs’ reaction to this “international driver”. European HE was characterised as “rigid and reluctant to change” that it did not embrace MOOCs while internationally MOOCs was already 10 years ago considered the future of education (Kaplan, 2020).

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- Is structural autonomy and decentralization in the management of HEIs favorable with regards to digital education?
- Does European HE need further alignment with the international trends in the digitalisation of HE?

VET and LLL: As stated earlier, innovation that is taking place nationally and locally by the partners of the VET and LLL sector (trainers, SMEs, teachers, trainers etc.) has been the main driver and motivator for these two sectors (EU Commission 2020).

For example, in the case of VET most teachers appear to be making decisions about ICT without being motivated by plans or strategies of any type (Gaebel, Kupriyanova, Morais & Colucci, 2014). The educators themselves are motivated by the characteristics of the learners while depending on the country, issues such as available funding is also one of the drivers in this field. In this sense awareness raising and continuous professional development seem play a key role in driving innovation in digitalisation in the VET and LLL sectors, at least locally if not at EU level.

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- Incentives must focus more at educators or strategic/leadership level?

2.3. Barriers and obstacles

HE: An important barrier with regards to digital education in HE has been the uncertainty with regards to legal issues associated to digital learning in HE and copyright issues regarding the creation and use of teaching and learning materials. These are issues for which European professors have not been sufficiently informed and trained until even today (Müller, Fünferlings & Tolks, 2018).

At the same time, with professors having the autonomy to experiment in terms of digital education, a barrier that appeared again and again was the online management of the teaching load of a course

planned originally to take place in the class (Müller, Fünfingerlings & Tols, 2018). With the lack of specific directions, trainings and strategies at EU level and often nationally, professors and faculty organised the digital offer themselves. At the end, they ended up facing the fact that the teaching load was not fulfilled. Naturally, this in turn led to consider the available equipment and the possibility to deliver a course online deficient.

On the other hand, according to some researchers, the overall reluctance and inhomogeneity of the European HE with regards to digitalisation can be attributed to the academics themselves. They have been blamed as remaining reluctant to stand in front of the camera *“either because of great respect for this unknown world or for fear of making themselves redundant”* (Kaplan, 2020). As a result, the universities in general stayed behind in informing themselves not just about digital learning but the way their administration and management should adapt accordingly in terms of business models, compensation models, or even legal issues related to intellectual property (Kaplan, 2020).

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- Is informing and training on legal and copy right issues for digital education equally or even more important compared to professional development for professors in the use of technology?
- Do we need more focus on skills needed to transfer the teaching load online?
- Incentives must focus more at professors or leadership level?

VET and LLL: Similarly, for the case of VET and LLL it is the educators that appeared resistant (for some understandably) to embrace and engage in continuing professional development activities related to digital education (EU Commission 2020).

“Openness to innovation” is a variable that should be investigated in EU and for the VET and LLL educators. As stated earlier, it is the educators that drive digital education in the VET and LL sectors however, ‘openness to innovation’ seems to be lower in EU overall than in other parts of the world (EU Commission 2020). From the same report of the EU Commission (2020), *“this pattern is hard to explain and even in countries where teacher autonomy is high (as in some Scandinavian countries) innovation rates are low compared to other non-EU countries”*.

Despite the multiple frameworks that EU has launched related to giving directions on the necessary digital skills and competencies it seems that this approach itself could be counter -productive. From a 2020 survey the results are shocking showing that there is significant lack of digitally skilled workforce resulting in an estimated digital skills gap of as many as 1,000,000 workers (DITA, 2020).

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- How do educators in VET and LLL define “innovation” in digital education and investigate further their “openness” to it.

3. During/Post-Covid-19 Status Quo of digitalisation at EU level

3.1. Policy and practice (national/federal, regional, local)

With the spread of COVID-19, European HE had to transition to digital learning almost overnight. As a response, the EU Commission eventually launched The Digital Education Action Plan (2021-2027) outlining the Commission's vision for high quality, inclusive and accessible digital education. Through this plan the EU called for stronger cooperation at European level to learn from the COVID-19 crisis and to make education and training systems fit for the digital age (ICDE, 2020).

The 2021-2027 Digital Education Action Plan was built on the 2018-2020 Action Plan. In the new Action Plan, EU aspired to play *"a more active role in identifying, sharing and scaling up good practices, fostering cooperation between all stakeholders and supporting EU Member States and the education and training sector with tools, frameworks, guidance, technical expertise and research"* (ICDE, 2020).

The Action Plan outlines the way that Member States can benefit from the Erasmus programme, the European Social Fund, the European Regional Development Fund and smart specialisation policies, the Connecting Europe Facility, the Digital Europe Programme and Horizon Europe in order to enhance their digital educational offer at all different levels and sectors (Digital Action Plan, 2020).

In addition, the Action Plan offers guidance to the Member States on how to prioritize funding for digital education using the Recovery and Resilience Facility and other cohesion policy instruments, in which upskilling and boosting very high-capacity broadband connectivity are *"flagship investments"* (Digital Action Plan, 2020).

As for the 2018 version of the Action Plan, in this major policy document EU emphasises digitalisation at all stages of education for the EU citizens and the plan is not meant to address only the needs of HE or only VET and LLL. However, it appears to be a document that aspires to provide more specific guidelines and prioritization with regards to digitalisation in education, also because of the clear-cut guidelines for seeking funding from funding instruments not originally meant for education such as the Recovery and Resilience Facility.

HE: At institutional level, the European HE had to adapt to the new COVID-19 reality. The Universities reviewed and updated their policies and compared to 63% in 2014, in 2020, 88% have a component in their wider institutionally strategy referring to digital learning and teaching (Gaebel, Zhang, Stoeber & Morrisroe, 2021).

At the same time, the trend of decentralised policies with regards to digitalisation and the almost complete freedom to the professors and faculties to innovate has also been impacted by COVID-19. Possibly because of more specific directions, prioritisation and funding coming from EU, we saw that the universities shifted towards a rather centralised and shared-responsibility approach with regards to digitalisation. Something that could also allow more efficient quality assurance and evaluation of such activities (Gaebel, Zhang, Stoeber & Morrisroe, 2021).

At policy level, EU appeared to have reacted fast doing what it was expected to do and prioritise the transition of HE to digital education and dedicate additional funding. However, for some researchers this was a perhaps rushed action that did not give any consideration to major issues that come with the “*platformisation*” of HE (Giannopoulou, Ducato, Schneider, Angiolini, 2021).

There are several data protection implications that come together with the digitalisation process and with the fact that the universities started relying to third-party services for the delivery of the courses. EU could have led collective negotiations on behalf of the European universities to ensure that they can preserve their autonomy and ability to apply their own data protection policies (Giannopoulou, Ducato, Schneider, Angiolini, 2021). This is in contrast for example with the active role that EU took few years ago in the “negotiations” with Google and the launching of the New Data Protection Law (GDPR).

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- Did the changes in the EU funding policies towards the digitalisation of HE play a role in influencing the digital transition of the European HEIs?
- Is the issue of data protection in digital education in HE, an issue that must be addressed by the EU as a whole instead of launching national policies?

VET and LLL: As mentioned earlier, following the impact of the COVID-19 pandemic on education, the EU Commission eventually launched The Digital Education Action Plan (2021-2027) outlining the Commission’s vision for high quality, inclusive and accessible digital education (ICDE, 2020). In this major policy document EU emphasises digitalisation at all stages of education for the EU citizens and the Plan is not meant to address only the needs of HE or only VET and LLL.

For some researchers and NGOs, the sectors of VET and LLL “felt” more the impact of the COVID-19 pandemic in terms of dealing with the exclusion and vulnerability of the learners. Many learners across Europe leave in poverty with no digital devices and/or web access at home, they are located in remote areas with lack of learning materials or school supplies, while several lost their source of income during the pandemic (Cedefop, 2020). With both sectors being closely dependent on the characteristics of their local context the educators had to step up to provide solutions which in turn informed the updated EU Action Plan as well as the calls for projects during the pandemic for the readiness of HE and VET and LLL sectors.

In a survey report from Cedefop (2020), VET and LLL educators described the main activities they organised in order to support learners at risk. These include as much as possible the use of free platforms and providing financial support for unlimited internet connection, organising more translations of the material into different languages spoken by ethnic minorities and refugees, including sign language for hearing impaired students, offering more training opportunities to learners on digital skills and competences and using tools to monitor the learners’ engagement in online classes and detect on time the risks.

With such data and information coming from practitioners, the EU stepped up and announced two “extraordinary calls of projects each providing €100 million to respond to the educational challenges resulting from the COVID-19 pandemic (Erasmus+, 2020).

Particularly the call for “Digital education readiness” addressed and supported the initiatives already taken by educators and are described above. This call funded projects in school education, vocational education and training, and higher education. *“Its aim was to enhance online, distance and blended learning - including supporting teachers and trainers, as well as safeguarding the inclusive nature of digital learning opportunities”* (Erasmus+, 2020).

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- Are inclusion issues more obvious in the VET/LLL sectors and digital learning?
- Should “inclusion” in these sectors be addressed with different criteria compared to HE?

3.2. Drivers and motivators

HE: In a 2020 survey by DIGIHE supported by EUA, the respondents described as the main enablers (*Figure 5.*) the existence of a comprehensive institutional strategy with regards to digitalisation and appropriate support to the staff and students (Gaebel, Zhang, Stoeber & Morrisroe, 2021).

A robust institutional strategy with regards to digitalisation concerns the entire institution and call for the proactive approach of all actors from design to implementation. The authors of this report point out that the main driver and enabler, contrary to what many would believe, is not the availability of up-to-date technologies and infrastructure but people’s attitude. Three-quarters of the respondents pointed out the proactive participation of staff and students, the availability of professional development and training, followed by strategy and investments in equipment and infrastructure much lower (Gaebel, Zhang, Stoeber & Morrisroe, 2021).

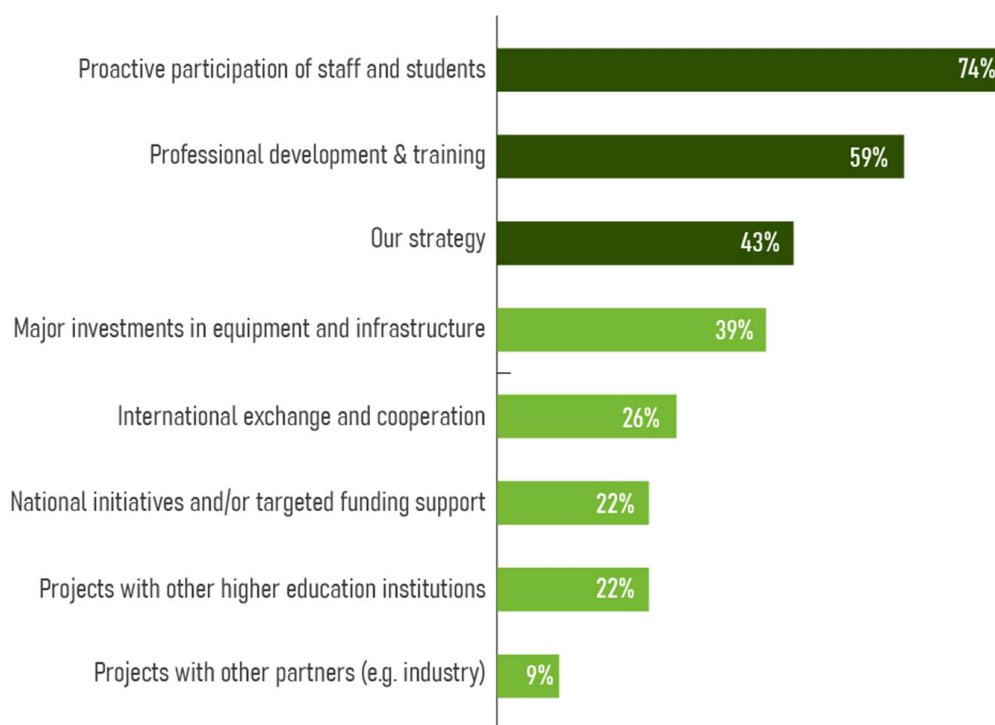


Figure 5. What are the top 3 enablers of digitally enhanced learning and teaching at your institution? (Please select your top three choices) (source: DIGIHE 2021).

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- More details on how exactly the involved stakeholders would define the “proactive” approach
- The aspects of an institutional strategy with regards to digitalisation which would make it “robust” or “comprehensive”

VET and LLL: There is limited literature online related to the specific enablers for the digitalisation of VET and LLL sectors. Most of the available resources repeat the need for a coherent strategy at EU level that goes beyond the definition of the e-competencies and the increase of investments and funding on these fields.

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- The project could fill the gap and provide more data regarding drivers and motivators for the digitalisation of the VET and LLL sectors.

3.3. Barriers and obstacles



HE: Following the results of the same study in chapter 3.2, it seems that the drivers and enablers are mirrored for digitalisation in HE “are mirrored” in the top barriers (Figure 6.). The lack of staff resources the lack of external funding, the difficulty to devise a concerted approach for the entire institution and the lack of staff motivation were identified as the top barriers (Gaebel, Zhang, Stoeber & Morrisroe, 2021).

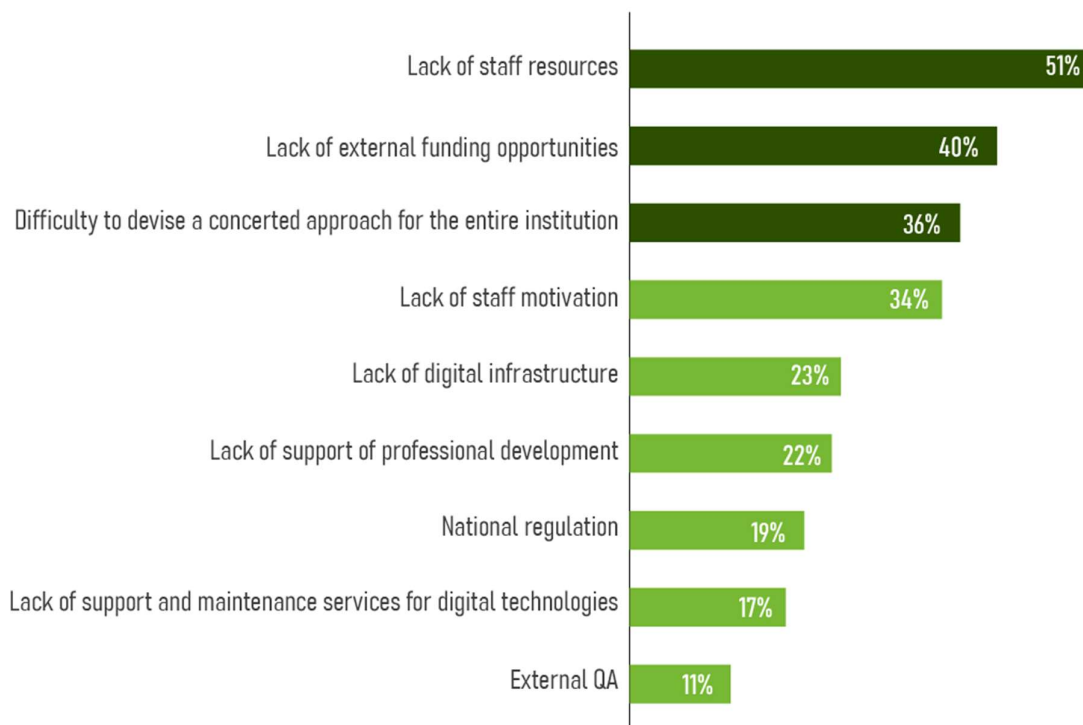


Figure 6. What are the top 3 barriers to digitally enhanced learning and teaching at your institution? (Please select your top three choices) (Source: DIGIHE, 2021).

The issue of legal and copyright issues also appeared in this report and even more important as a national and European problematic issue rather than just institutional. The authors refer to “*anecdotal evidence*” that confirm uncertainty with regards to copyright issues and reservations against creative commons licensing and Open Education Resources approaches (Gaebel, Zhang, Stoeber & Morrisroe, 2021).

Finally, it is important to refer to the issue of student and faculty mobility in HE for which the EU at policy level and the Member States have invested many years and significant funding in order to support it and establish it as common practice in Europe. The universities have benefited greatly and at many levels by the physical presence of international students and faculty. The COVID-19 pandemic and the digitalisation of higher education put a stop on it overnight. The impact has been immense and even though most universities eventually offered alternatives for “virtual mobility”, it has been argued that the results were not close to the desired ones (Farnell, Matijević & Schmidt, 2021). As a result, some universities might still be skeptical of transitioning all university experiences, such as the welcoming of international students, to digital environments.

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- Should all university services be digitalized? Should universities prioritise or exclude some fields from the process of digitalisation?

VET and LLL: As for the case of the “drivers and motivators”, there is limited literature related to this topic in the EU overall. We could assume however, that the drivers and motivators are also mirrored in the barriers and obstacles and concentrate on the fact that these sectors are largely based on the specificities of each national context. Even though this seems appropriate for VET and LLL, the lack of coherent policies that take into account the often met north-south gap and can in turn direct the available funding and coordination with the Member States could be a way to start this discussion.

Issues to consider addressing or investigating further through the results of DigiTransformEdu project:

- The project could fill the gap and provide more data regarding barriers and obstacles for the digitalisation of the VET and LLL sectors.

4. Future Outlook and Opportunities

The urgency that the spread of COVID-19 created in EU led in some cases the educational institutions in Europe to prioritising the management of a health crisis but not to provide a better and adapted learning and teaching. Their reaction, due to its urgency was most likely not linked to their mission and strategy leading some experts to believe that once the situation clears up *“most of the universities will appear dysfunctional in a post-Covid-19 environment, and that there will be strong pressure to return to “normality”, meaning physical face-to-face on-campus provision”* (Gaebel, Zhang, Stoeber & Morrisroe, 2021). In this sense, HE in the EU will miss its opportunity to maintain the momentum, sustain and built on the first - in many cases impressive - results and continue beyond the urgency of the crisis to lead innovation in the field.

It has been said that the COVID-19 pandemic ended up being a driver and a motivator for the educational offer in Europe. The pandemic originally presented a threat, but for many it ended up being an opportunity. In the field of HE, with almost all universities being forced to go online basically overnight, the European HE *“experienced the biggest EdTech experiment in the history of education”* (Kaplan, 2020).

Currently the universities are reflecting and experimenting with innovations and changed paradigms and are engaged in dialogue with the interested parties (teachers, faculties, communities etc.) to explore whether digitalisation will become itself a driver for change in HE. Such pedagogical innovations include for example:

- hybrid programs where students spend their first year working while attending online courses to learn basic concepts and theories.
- Maintaining contact online with alumni and students abroad

- Rethinking the existing facilities as a space for team working and collaboration (largely missing from the online platforms) instead of classrooms and amphitheatres

(Kaplan, 2020).

Overall, for the European educational offer, including HE as well as the VET and LLL sectors, facilitating exchange and track the progress and best practices is essential. The EU must support and actualize further such initiatives. This means that a coherent vision for digital education across Europe is needed which will take into consideration national particularities (advanced/non advanced countries, poor/rich countries etc), set common standards and lead the way to EU becoming a competitive industry for digital learning (Beblavy, Baiocco, Kihoffer, Akguc & Jacquot, 2019).

The quality of learning and teaching in the digital environment must be studied further with consideration of all types of learning, from early childhood to continuous professional development. This must be developed jointly, to avoid fragmentation and partial view of this issue limited only to defining digital skills or acquiring digital technologies (Beblavy, Baiocco, Kihoffer, Akguc & Jacquot, 2019). Research and innovation, at university as well as entrepreneurial level, come forward to play a crucial role in optimizing and advancing educational technologies and the study of human-computer interface.

Some experts recommend to start with short-term and urgent priorities, such as ensuring equal access to inclusive digital education for all across Europe. This in turn will provide the base for studying and mapping the needs across Europe in order to design a coherent robust policy for the digitalisation of education that goes beyond the setting of objectives and puts forward among others funding, research and quality assurance.

5. Conclusions and DigiTransformEdu survey results

As stated earlier, the COVID-19 pandemic – in some cases - ended up being a driver and a motivator for the educational offer in Europe. It originally presented a threat, but for many it ended up being an opportunity. In the field of HE, with almost all universities being forced to go online basically overnight, the European HE *“experienced the biggest EdTech experiment in the history of education”* (Kaplan, 2020).

The past decade, a big number of policies and funding in the EU has been dedicated to the improvement of digital skills from a very young age until continuous professional development opportunities. The past decade EU has been considered a hospitable and competitive environment with regards to digitalization in education, commerce, policies etc., also due to the ambitious EU plan to build a single digital market

The EU must now support and actualize further its role in promoting the digitalisation of the educational sector. This means that a coherent vision for digital education across Europe is needed which will take into consideration national particularities (advanced/non advanced countries, poor/rich countries etc), set common standards and lead the way to EU becoming a competitive industry for digital learning (Beblavy, Baiocco, Kihoffer, Akguc & Jacquot, 2019).

As an additional way to verify the results coming from the literature review, EFMD shared the DigiTransformEdu lecturers' survey (Annex 1) with lecturers active professionally during and after the COVID-19 pandemic in countries around Europe.

The results of the survey indeed verify some of the conclusions coming from the literature review. More specifically:

- Mixed results with regards to how the use of online teaching improved the digital competencies of both, educators and students. Indicating that the process of capitalizing the opportunity that the pandemic has "offered" has not started yet
- Mixed results with regards to the organization of the exams online. Indicating that not all phases of digital pedagogy were "ready" to be transferred online
- Mixed results with regards to the lecturers' preference for online teaching with the majority preferring blended or fully face to face teaching. Indicating that the way the transition happened and teaching online took place, has not yet convinced educators about the potentials of this approach
- Most of the recommendations from the lecturers refer to class-level interventions, indicating that there is still work to be done in terms of institutional policies and wholistic approach digital education

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