How are OECD governments navigating the digital higher education landscape? Evidence from a comparative policy survey

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Evidence from a comparative policy survey

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This working paper has been authorised by Andreas Schleicher, Director of the Directorate for Education and Skills, OECD.

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Abstract

Module A of the OECD Higher Education Policy Survey (HEPS) 2022 elicited information on policies to promote digitalisation of higher education in OECD member and accession countries. In total, 30 jurisdictions responded, providing comparative information on various areas of digitalisation policy, from regulation and governance to financial and human resources. The survey results provide insight into the role of public authorities in guiding, coordinating and resourcing the digital transformation of higher education institutions. The analysis and comparative tables in this working paper provide insights that can support the development of strategic digitalisation policies.

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Introduction

Higher education systems face a growing imperative to adapt programme offerings, curricula, and modes of delivery to a new reality, where students pursue novel learning methods, and digitalisation enables a variety of routes for acquiring advanced skills.[1] Digital tools and technologies now permeate almost all higher education activities, blurring traditional distinctions between face-to-face and digitally-delivered education, and promising a range of benefits to those able to harness their potential. While many higher education institutions (HEIs) are proactively adopting and usefully employing digital technologies in teaching, learning, research and administrative processes, others lack the resources or capacity to effectively do so. Despite their high levels of autonomy, HEIs need public authorities to support their efforts, by providing strategic direction, creating frameworks for coordination and co-operation across the sector, and allocating resources to stimulate digital transformation (OECD, 2023[1]).

Many public policies relating to higher education commonly found across OECD countries were not designed to take account of a highly digitalised learning environment. At the same time, there are some signals that governments are starting to adapt existing policy or introduce new policies that can support effective digitalisation. This paper contains an overview of the key findings of Module A of the OECD Higher Education Policy Survey (HEPS) 2022, which had a thematic focus on digitalisation policy in OECD member and accession countries' higher education systems. The HEPS 2022 is the latest iteration of a new survey instrument first fielded by the OECD Higher Education Policy Team in 2020, on the topic of resourcing higher education (Golden, Troy and Weko, 2021[2]). The HEPS and its associated outputs are designed to inform the work of the OECD's Enhancing Higher Education Performance project, and to strengthen the comparative evidence base on higher education policies.

Information about the survey

The digitalisation module of the survey was launched in July 2022. It covered a range of topics related to regulation, governance and resourcing of digital higher education, as shown in Figure 1. The OECD Secretariat created and tested the survey module from April to June 2022 and updated it following consultation with national experts (notably, the members of the OECD Group of National Experts in Higher Education) and critical friends.

Format

As with the previous version of the HEPS, fielded in 2020, the questions were presented in fixed-response format, with optional areas where respondents could provide additional clarifying information or nuance necessary to interpret the fixed response provided. One response per (national or subnational) education system was requested.

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[1] Throughout the survey, a course refers to: a period of study focused on a particular topic with a designated credit value and constitutes a building block of higher education programmes. A programme can be defined as: a series of courses and/or a research project which form the basis for award of a higher education degree if successfully completed.

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Scope

In total, 30 jurisdictions responded to module A of the survey – Australia, Austria, the Flemish Community of Belgium, the French Community of Belgium, Canada, Chile, Denmark, Estonia, Finland, France, Hungary, Iceland, Ireland, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and Türkiye.[2] Throughout the paper, the terms "jurisdictions" and "systems" are used interchangeably to describe the survey respondents.

Figure 1. Topics covered by the Higher Education Policy Survey 2022 – Module A
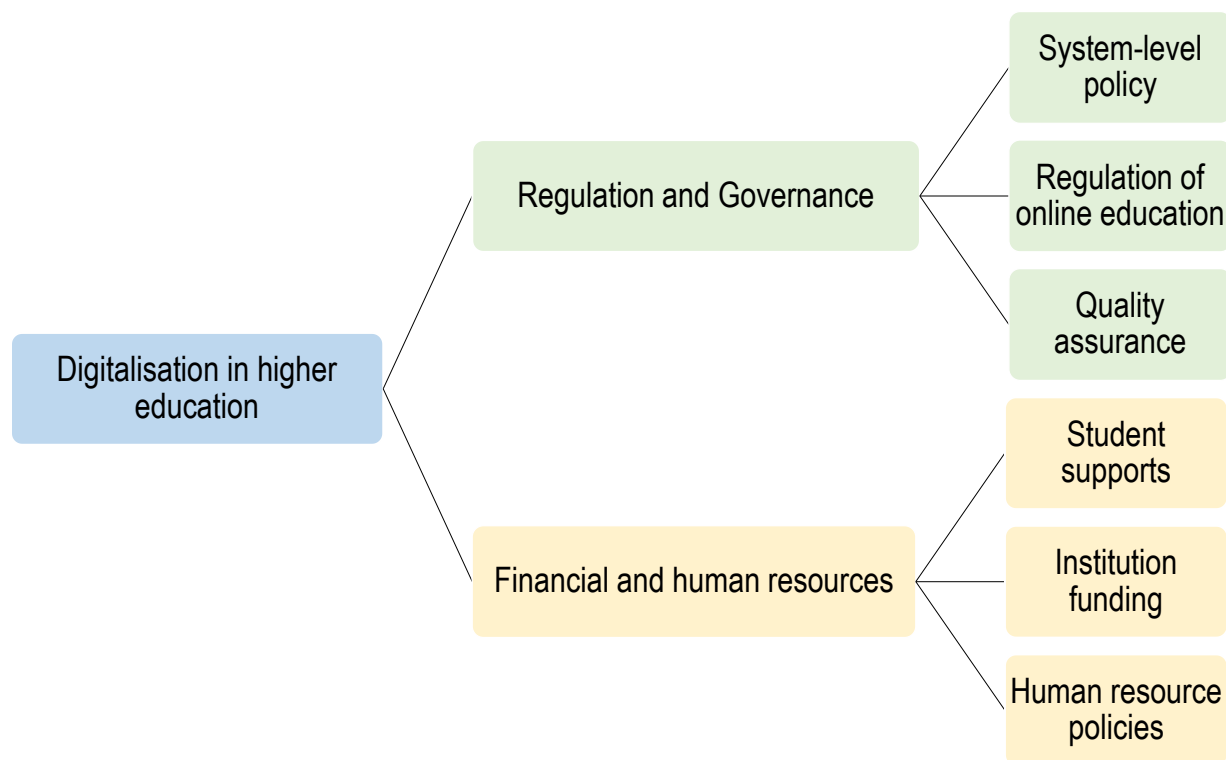
It is important to note that the organisation of higher education systems, governance structures and policy frameworks vary significantly across countries, and this varying scope by jurisdiction should be accounted for when considering the survey responses. For instance, Austria's, responses are restricted to policy related to public universities. In Spain, central or public entities overseeing higher education could denote either Ministries at the national level or Regional Authorities in Autonomous Communities whereas higher education in Switzerland primarily falls under the jurisdiction of the 26 Swiss Cantons. For Canada, responses may be relevant to specific provinces and territories. In such cases, the answers provided by Canada may only be applicable in one or more subnational systems or to specific group of HEIs. On the other hand, responses for the Flemish and French Communities of Belgium were collected and reported separately.

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[2] In Canada, a national-survey response was assembled based on data collected from individual provinces.

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These variations underscore the need to interpret the survey responses in the context of each country's distinct higher education landscape.

The remainder of this paper presents a detailed descriptive summary of the results of the survey, under two main thematic groupings. Section 1 focuses on regulation and governance of digital higher education, while Section 2 examines financial and human resource policy relevant to digital provision. Box 1 provides a summary of the survey's main findings while Annex A contains comparative tables showing responses to selected survey questions for each responding jurisdiction.

Box 1. Summary of findings from HEPS 2022 on digitalisation of higher education

The HEPS 2022 module A provides a snapshot of digitalisation policies in higher education systems across OECD countries in 2022. Several noteworthy findings concerning the landscape of digitalisation policies in higher education following the Covid-19 pandemic emerge from the survey:

- Responsibility for digitalisation policy appears scattered in most higher education systems included in the survey. Governments appear to defer to the autonomy of higher education institutions in most aspects of policy, setting few system-level strategic targets for digital higher education while encouraging institutions to develop their own strategies. Efforts to systematically collect data on digital education remain limited.

- Fully online HEIs exist in more than half of the systems responding to the survey, and, where online higher education programmes are authorised, governments impose few limitations on their operation.

- Students in fully online or hybrid programmes are eligible for similar grant and loan supports to campus-based students in most systems, and young researchers in some countries are permitted to work fully online. Furthermore, there appears to be limited differentiation of tuition fees according to students' mode of study.

- Few countries have distinct sets of standards and procedures to authorise hybrid and fully online programmes and digitalisation is rarely specifically accounted for in external quality assurance processes.

- Few systems provide dedicated space for teaching in a digital environment in higher education teaching qualifications or workload allocation models. At the same time, targeted allocation of public funds is a commonly used means to develop HEIs' digital capacity with many jurisdictions providing specific resources aimed at developing digital capabilities.

- Innovation funds to support experimentation are by far the most common form of policy to support the development of digital capabilities in HEIs. However, there appears to be less emphasis on the provision of public supports to tackle digital divides. The survey also found that, in the responding jurisdictions, integration of courses from online learning platforms into existing higher education programmes is more accepted than outsourcing online courses or programmes.

Source: Adapted from the OECD Higher Education Policy Survey 2022 module A on digitalisation in higher education.

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1 Regulating and governing digital higher education

This section analyses the extent to which regulation and governance mechanisms commonly found in higher education systems are adapted to support the development and improvement of digital education. The following subsections examine system-level digitalisation policy, the regulation of online education provision (including the provision of fully online and hybrid programmes) and policies for quality assurance of digital education.[3]

System-level digitalisation policy

Responsibility for digitalisation policy appears fragmented in most higher education systems

HEIs employ a growing range of digital technologies in their activities, which require adequate resources and scaffolding policies to support, guide and monitor their use. Policies and regulations related to digital higher education may fall within the remit of public authorities or central bodies. Alternatively, HEIs themselves may have the autonomy to set their own local policy. Central or public authorities can include the ministry responsible for higher education, the technology or communication ministry, public agencies responsible for higher education, quality assurance bodies, and National Research and Education Networks.[4]

Among responding jurisdictions' higher education systems, the results of this survey show that public or central authorities are typically primarily responsible for policy related to funding or financial aspects of digitalisation – they oversee the setting of system-level policies on the funding of digital education in HEIs in 25 out of 30 jurisdictions (Figure 1.1). A large share of reporting jurisdictions (11 out of 30) does not have a clear actor responsible for setting policies related to financially supporting learners in fully online or hybrid degrees. However, where responsibility has been clearly assigned, it also tends to fall to central or public bodies, typically ministries for higher education (Figure 1.1).

In contrast, individual HEIs typically have discretion over the use they make of financial resources available for the development of digital education. In a large majority of jurisdictions, HEIs are responsible for the

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[3] In the HEPS, digital education, also often called e-Learning, is defined as the use of digital technologies and tools for teaching and learning. It includes education delivered online, as well as the incorporation of digital technologies and tools in education provided in face-to-face mode. Fully online programmes are defined as programmes in which all instruction required for completion takes place online. Hybrid programmes are defined as study programmes where some elements are delivered online, and some are delivered face-to-face.

[4] A National Research and Education Network (NREN) is a centralised national provider of internet and networking services specifically targeted at meeting the needs of research and educational institutions. NRENs may also provide additional services beyond internet connectivity, such as email or learning management systems.

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acquisition of learning management systems or virtual learning environments[5] as well as decisions related to purchases of technical equipment (in 27 and 25 systems respectively - Figure 1.1). HEIs are also most often the responsible actors setting policies to train teaching staff to deliver digital education (in 17 systems) and in a slight majority (16) of systems HEIs have freedom to set policy regarding the establishment, maintenance and upgrading of internet connectivity.

On the other hand, where responsibilities are clearly allocated for regulation of the mode of delivery of education programmes (i.e. on-campus, hybrid or fully online), they are closely split between the public or central bodies (15 systems) and HEI levels (13 systems) (Figure 1.1).

Figure 1.1. Digitalisation policy decision makers in OECD higher education systems

Actors primarily responsible for setting system-level policies in relation to different aspects of digitalisation
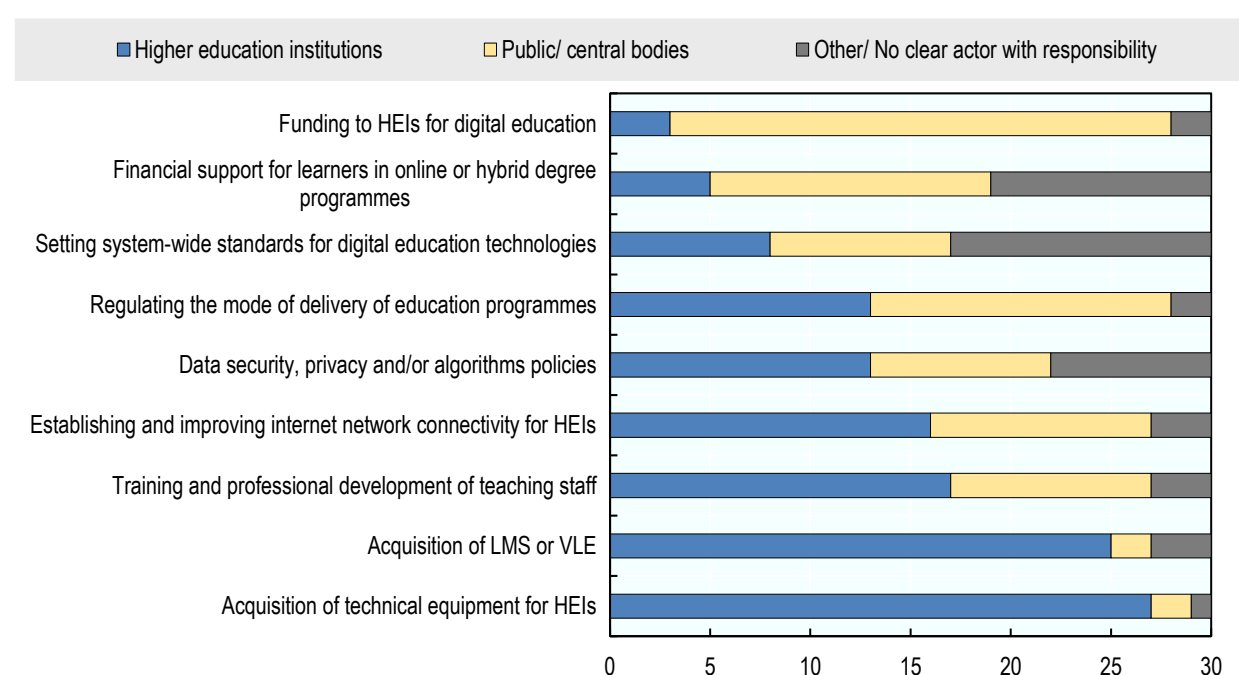
Note: Total jurisdictions responding = 30. In Canada, depending on the provinces and territories, funding for HEIs institutions to support digital education can fall under the responsibility of public/ central bodies or HEIs themselves. For this item, Canada is represented in the "Other/ no clear actor with responsibility" category. In Spain, central or public bodies may refer to Ministries or Regional Authorities in Autonomous Communities. HEIs refers to Higher Education Institutions, LMS to Learning Management Systems and VLE to virtual learning environments. See Annex Table A.1 for the exact survey questions and individual level answers corresponding to this figure.

The survey results also show that important shares of responding jurisdictions have no clear assignment of responsibility for areas of policy vital to managing risks and ensuring efficiency and quality of digital education. For example, 8 of the 30 jurisdictions could not identify a clear locus of responsibility for policy development concerning data security and privacy, while 13 jurisdictions did not indicate a specific actor responsible for the setting of system-wide standards for digital technologies. Of the 22 jurisdictions with clarity of responsibility, HEIs are typically the responsible actor in charge of governing data security and

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[5] In the survey, learning management systems (LMS) refer to software applications used for the administration, documentation, tracking, reporting, automation, and delivery of educational courses, training programmes, or learning and development programmes. A virtual learning environment (VLE) is defined as: a digital learning environment that allows instructors and students to connect online to teach and learn virtually. The VLE may permit students to engage with lesson materials, view presentations and videos, and take tests in real time.

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privacy in jurisdictions (in 13 cases), while responsibility for setting system-wide standards for digital technologies is almost evenly split between public authorities and HEIs themselves (9 and 8 jurisdictions respectively).

Governments are setting few system-level strategic targets for digital higher education

Policy levers aimed at reaping the maximum benefit from digital technologies in higher education can include defining targets or objectives for subsystems[6] or at the overall system level. Setting clear objectives can help to orient HEIs as they develop their own digitalisation strategies (OECD, 2023[1]). In total 19 out of 30 responding jurisdictions report having developed objectives or targets for at least one of the elements of digitalisation listed in Figure 1.2, with different jurisdictions focusing on different aspects of digitalisation. However, overall, the survey results indicate that the general extent of target-setting activity among governments related to digitalisation is rather limited. Only four countries (France, Hungary, Italy Poland) have adopted targets for more than half of the elements mentioned in the survey (Figure 1.2).

Figure 1.2. Targets and objectives for digitalisation in OECD higher education systems

Elements of digitalisation for which authorities set targets or objectives at system or subsystem level
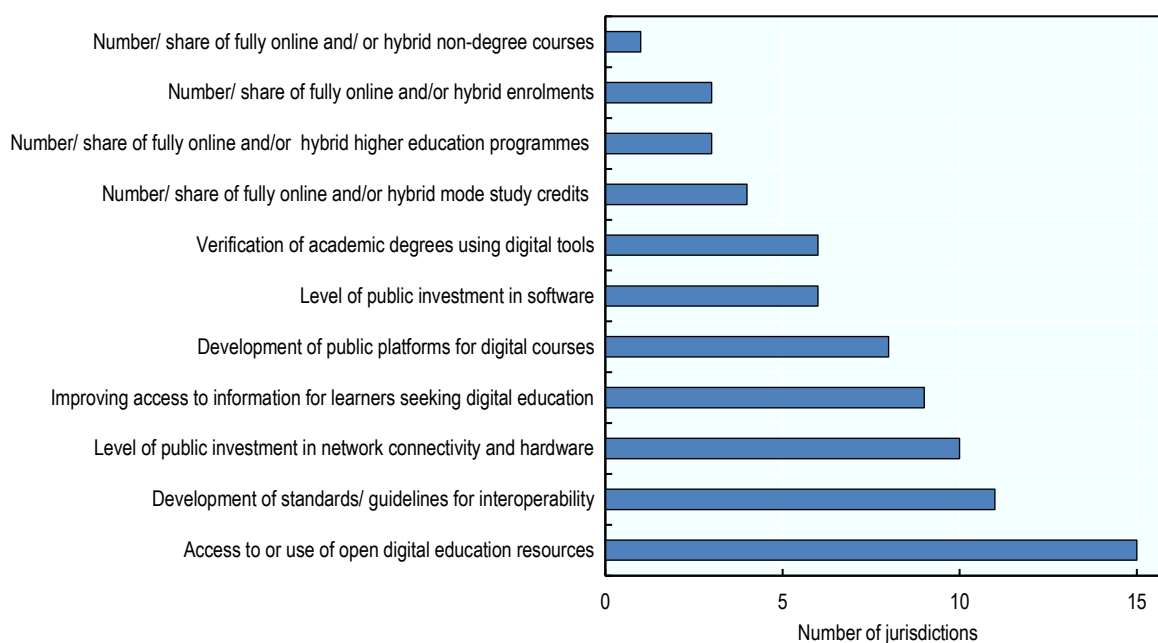
Note: Total jurisdictions responding = 30. See Annex Table A.2 for the exact survey questions and individual level answers corresponding to this figure.

Where jurisdictions have set targets or objectives for specific elements of digital education, most (15 of 19) have focused on the access or use of open digital education resources, or objectives for the development of standards or guidelines for the interoperability of digital technologies (11 of 19).[7] Just ten jurisdictions

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[6] In the survey, subsystems of higher education, also often called sectors of higher education, refer to: groups of institutions within the wider system that are subject to a common set of regulatory or legal characteristics, that differentiate it from other institutions within the wider system. Examples of subsystems might include public universities or technical higher education institutions.

[7] In the survey, interoperability is defined as: the ability of different types of computer systems or software products to communicate with each other, to use common data formats and/or to effectively interpret information passing from one system or product to another.

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set objectives for the level of public investment in network connectivity and hardware while six report setting targets on the level of public investment in software. Other important elements of digitalisation also appear to not attract strong policy focus, in terms of setting system objectives. In total, for example, nine jurisdictions have set objectives for improving access to information for learners interested in digitally provided education, while six jurisdictions have objectives pertaining to the verification of academic degrees using digital tools (Figure 1.2).

Finally, very few jurisdictions set concrete targets or objectives for higher education delivered fully online and/or in hybrid mode. Just four countries (France, Hungary, Italy and Poland) set objectives related to the number or share of study credits delivered through online/hybrid modes. Fewer again set such targets for higher education programmes (France, Italy and Poland) or enrolments (France, Poland and Portugal), while only France sets objectives for non-degree courses delivered fully online and/or in hybrid mode (Figure 1.2).

Public policy levers tend to focus on encouraging HEIs to develop their own strategies

Apart from setting system-level targets, several other potential policy levers aimed at supporting higher education digitalisation are in use across responding jurisdictions. These include the establishment of public regulations about the use of digital technologies in higher education, the collection of data on digital education and quality assurance processes developed specifically for digital education. With the exception of Australia, Denmark, Japan, Latvia and Lithuania, all responding jurisdictions reported having at least one such supportive policy lever in place. A majority of systems have not adopted more than two of the policy levers mentioned in the survey, although two countries (France and Italy) have adopted all seven policy levers.

Many survey responses (e.g. Canada, Iceland and Sweden) highlighted the autonomy of HEIs in their systems to set policy on matters of digital education, in terms of teaching materials and modes of delivery. However, governments still often play a steering or encouraging role in this regard. 60% of the responding jurisdictions have policies in place to encourage HEIs to develop institution-wide strategies for digital education (18 out of 30) while half have models available for shared procurement of digital infrastructure (15 out of 30) (Figure 1.3).[8] Some respondents also mentioned the mandate of some national bodies and structures to support digital higher education. For example, the Luxembourg Media & Digital Design Centre (LMDDC), created in December 2020, aims to support Luxembourg's digital education stakeholders in their innovation efforts.

Despite potential data security risks and persistent concerns about the fair use of algorithms in increasingly digitalised higher education environments, less than half of the responding jurisdictions have adopted public regulations or guidelines on the ethical use of data and algorithms in higher education (Figure 1.3). In this regard, many systems may rely on wider national regulations or legislation which are applicable to higher education as well as many other sectors. For example, in New Zealand, wider national provisions such as the New Zealand Privacy Act and the Algorithm Charter are also relevant for higher education systems.

Digital technologies also come with specific risks for students' well-being (OECD, 2023[1]). However, only a limited number (approximately one-quarter) of the responding jurisdictions report having public regulations or guidelines aimed at supporting the mental health and well-being of students when they are online (Figure 1.3).

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[8] In the survey, digital infrastructure is defined as: infrastructure which brings together and interconnects physical and virtual technologies, in particular processing, storage, network, applications, and cloud services, to build the foundation for a higher education provider's digital education operations.

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Figure 1.3. Policy levers to guide, evaluate or enhance digitalisation in HEIs
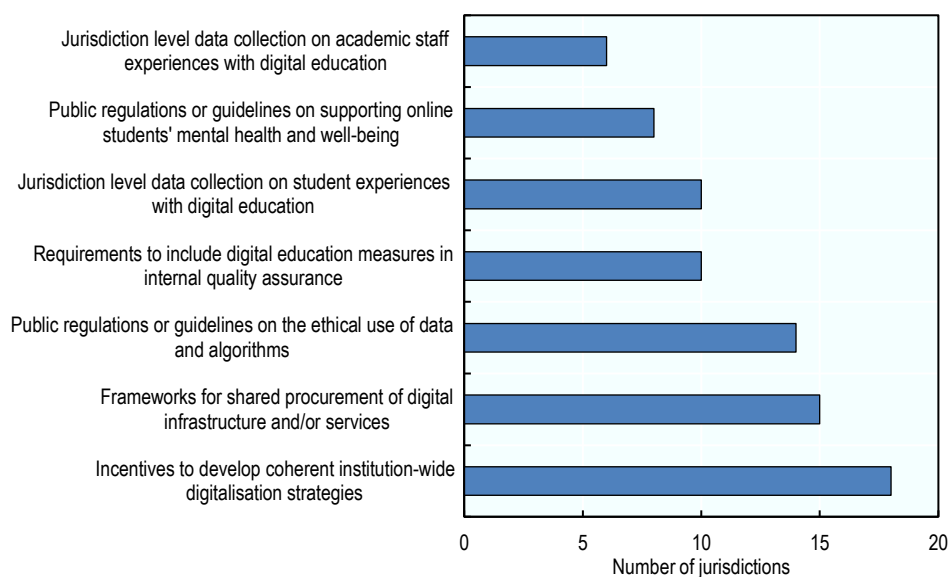
Note: Total jurisdictions responding = 30. See Annex Table A.3 for the exact survey questions and individual level answers corresponding to this figure.

Efforts to systematically collect data on digital education are limited

Data collection efforts can play a significant role in improving understanding of progress on digitalisation in higher education and provide insight on differences in practices, attitudes and performance of students and staff using digital technology. Currently, only one-fifth of responding jurisdictions collect data on academic staff experiences with digital education, and one-third collect information on student experiences with digital education tools or modes of delivery (Figure 1.3).

These results may provide cause for concern considering mixed existing evidence on the experiences and outcomes of students and staff in digital environments, and the limited availability of official data collection which could allow these questions to be examined in most systems (Figure 1.4). While 21 of the 30 responding systems collect some form of data related to aspects of digitalisation in higher education, most of these efforts relate to measuring the number of students enrolled in hybrid or fully online programmes. Slightly more than half (17) of the sampled jurisdictions collect this type of data. On the other hand, few jurisdictions collect data on the digital capabilities of their students (only Ireland) or teaching staff (Ireland, Italy, Türkiye and Korea).[9]

Progression and completion of students by mode of delivery is monitored in one-third of jurisdictions (10) with some of these jurisdictions (Ireland, Spain, Romania, some provinces and territories in Canada, Italy and New Zealand) also collecting data on labour market outcomes by mode of delivery (Figure 1.4). The growing importance of digital technologies in HEIs also implies institutions will have to invest a growing share of their budgets on maintaining and developing their digital infrastructure. So far, only eight of the responding jurisdictions report collecting data on such expenditures at the HEI level (Austria, Chile, Hungary, Italy, Korea, Luxembourg, Spain and Poland).

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[9] In the survey, digital capabilities, also often called digital competence, refer to: the transversal knowledge and skills needed for the confident and effective use of digital technologies for teaching and learning.

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Figure 1.4. Official data collection and statistics generation on digitalisation

Aspects of digitalisation subject to official data collection and/ or generation of statistics by public authorities
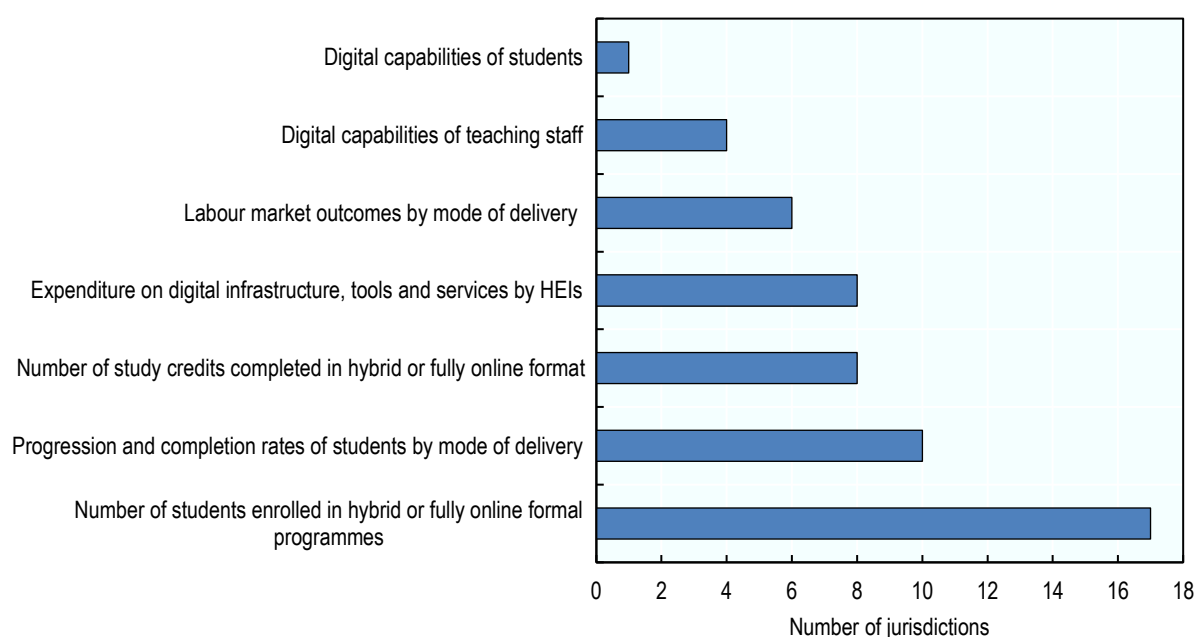
Note: Total jurisdictions responding = 30. HEIs refers to higher education institutions. See Annex Table A.4 for the exact survey questions and individual level answers corresponding to this figure.

The limited system-level data collection can be attributed to various factors. Firstly, quantifying various aspects of digital transformation presents a considerable hurdle, not only in educational systems, but across all sectors of the economy. Official statistical systems face difficulties adapting and responding to novel, rapidly evolving concepts that are emerging during digital transformation processes. Other contextual factors may also limit the collection of system-level data – for example in Estonia no distinction is made between online and in-person students in data collection systems, as there are very few online courses. At the same time, there are signals that data coverage for different aspects of digitalisation could improve in the future. For example, some systems, including New Zealand and some provinces and territories in Canada, either have or are developing data collections that could in the future allow for some of the statistics mentioned in Figure 1.4 to be computed.

Individual responses on jurisdictions' system-level digitalisation policy can be found in Tables A.1 through A.4 in the Annex.

Regulation of online and hybrid education provision

The expansion of fully online and hybrid study programmes has led to concerns about maintaining consistent quality. As a result, several jurisdictions regulate or limit the provision of online higher education, particularly higher education programmes delivered wholly online. This section describes different routes taken by the responding jurisdictions to regulate online education, based on the survey results.

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Few countries have distinct sets of standards and procedures to authorise hybrid and fully online programmes

In general, 21 of the 30 jurisdictions responding to the survey reported having programme-level authorisation of new bachelor's programmes. Within these 21 jurisdictions, approximately half apply the same standards and procedures for hybrid programmes as in-person programmes, while three jurisdictions (Italy, New Zealand and Romania) have developed specific procedures for hybrid programme authorisation (Figure 1.5).

While hybrid programmes are at least implicitly authorised in all the responding systems, two of the 21 jurisdictions with external programme authorisation procedures (Lithuania and Romania) do not provide authorisation for fully online programmes. Nine jurisdictions have the same standards as in-person study programmes for fully online programmes while four countries (Italy, Japan, New Zealand and Portugal) have made distinct procedures and standards for the authorisation of fully online programmes (Figure 1.5).

Many jurisdictions indicated that no legislation or regulation exists for specific modes of delivery, or that existing legislation is intended to cover programmes offered through all modes of delivery, but that HEIs are ultimately responsible for ensuring quality. In other cases, mode of delivery may be specifically considered as a factor in the programme approval process (as is the case in New Zealand) or certain activities may be subjected to limitation in online provision, such as practical or professional training elements of programmes (as is the case in Norway).

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Figure 1.5. Programme authorisation standards and procedures for hybrid and fully online programmes

Panel a. fully online programmes

4 - Italy, Japan, New Zealand, Portugal

9 - Austria, Estonia, Finland, Hungary, Iceland, Mexico, Norway, Switzerland, Türkiye

9 - Australia, Canada, Denmark, Flemish Comm. (Belgium), France, Ireland, Korea, Latvia, Spain

2 - Lithuania, Romania

5 - French Comm. (Belgium), Luxembourg, Netherlands, Poland, Sweden
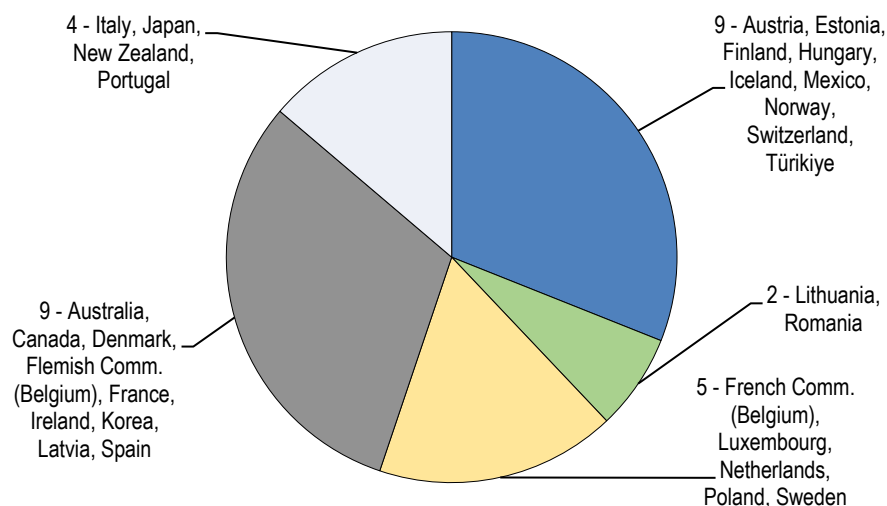
Panel b. hybrid programmes

3 - Italy, New Zealand, Romania

9 - Austria, Estonia, Finland, Hungary, Iceland, Mexico, Norway, Switzerland, Türkiye

11 - Australia, Canada, Chile, Denmark, Flemish Comm. (Belgium), France, Ireland, Latvia, Lithuania, Luxembourg, Spain

7 - French Comm. (Belgium), Japan, Korea, Netherlands, Poland, Portugal, Sweden

- ■ No programme level authorisation
- ■ No such programmes permitted
- ■ No standards or procedures have been established
- ■ The same standards and procedures as in-person study programmes
- □ Distinct standards and procedures

Notes: Total jurisdictions responding = 30 for hybrid programmes; 29 for fully online.
French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. See Annex Table A.5 for the exact survey questions and individual level answers corresponding to these figures.

Fully online HEIs exist in more than half of the systems responding to the survey

Across the OECD, recent decades have seen the emergence and growth of fully online higher education institutions. Of the 30 reporting jurisdictions, 17 have recognised fully online education providers operating within their system. Of these, most (15) report having public or government-dependent private fully online

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providers, while 13 jurisdictions report having recognised independent non-profit or for-profit online providers (Figure 1.6). The legal status of fully online providers varies substantially across systems. For example, the French Community in Belgium, Hungary and Türkiye only have recognised public or government dependent online education providers while Korea only has independent online private non-profit providers. In Ireland, there are both for-profit and non-profit independent private online providers while Japan has public or government-dependent and independent private for-profit providers but no non-profit providers (Figure 1.6). In Iceland, there are no online for-profit providers since education for profit is explicitly prohibited by law.

Figure 1.6. Fully online recognised higher education providers, by type of provider
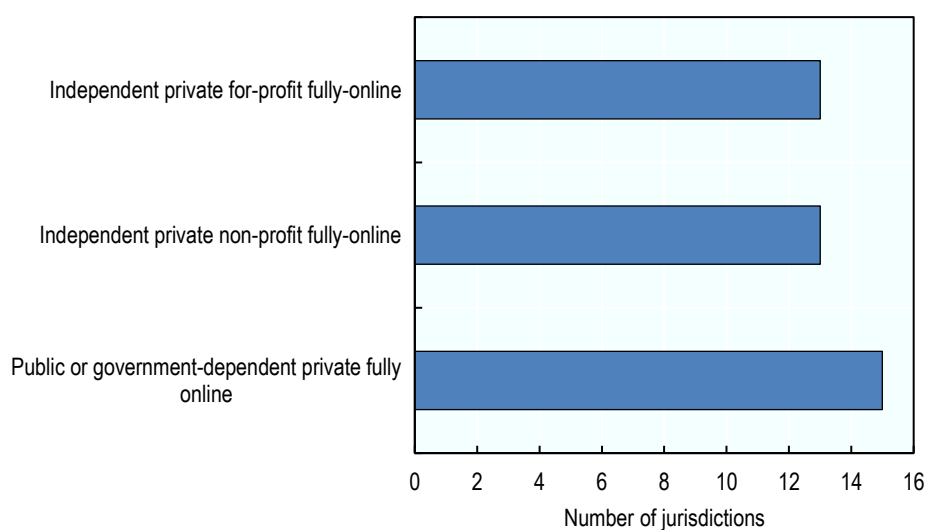
Note: Total jurisdictions responding = 30. See Annex Table A.6 for the exact survey questions and individual level answers corresponding to this figure.

Governments impose few limitations on online higher education offerings, where authorised

Other than directly regulating online providers and programmes, governments may also impose more specific limitations on various elements of online education. In total, just seven responding countries have limitations on the type of education content or programmes that may be offered online (Figure 1.7). Of these seven, four countries (Italy, Portugal, Romania and Spain) and Lithuania also set ceilings on the proportion of content that can be delivered online within a programme. Furthermore, Italy and Türkiye set limits on the share of programmes HEIs can deliver online (Figure 1.7), while only Korea sets limitations on the education level of programmes that are allowed to be delivered online. In Romania, limitations are placed on online provision according to the enrolment intensity of programmes (i.e. whether the provision is classed as full time or part-time).

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Figure 1.7. Governments limitations on the operation of online education programmes

Elements of online education subject to government imposed limitations

Note: Total jurisdictions responding = 30. See Annex Table A.6 for the exact survey questions and individual level answers corresponding to this figure.

Young researchers in some countries are permitted to work fully online

At doctoral and postdoctoral level, there is a relatively even division between systems that do not authorise fully online programmes/projects and countries where some or all researchers may work fully online. In total, 11 countries allow both doctoral candidates and postdoctoral researchers to conduct their research fully online (Figure 1.8).

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Figure 1.8. Young researchers and fully online education

Doctoral candidates (ISCED 8) and/or postdoctoral researchers permitted to pursue their programmes/ projects fully online
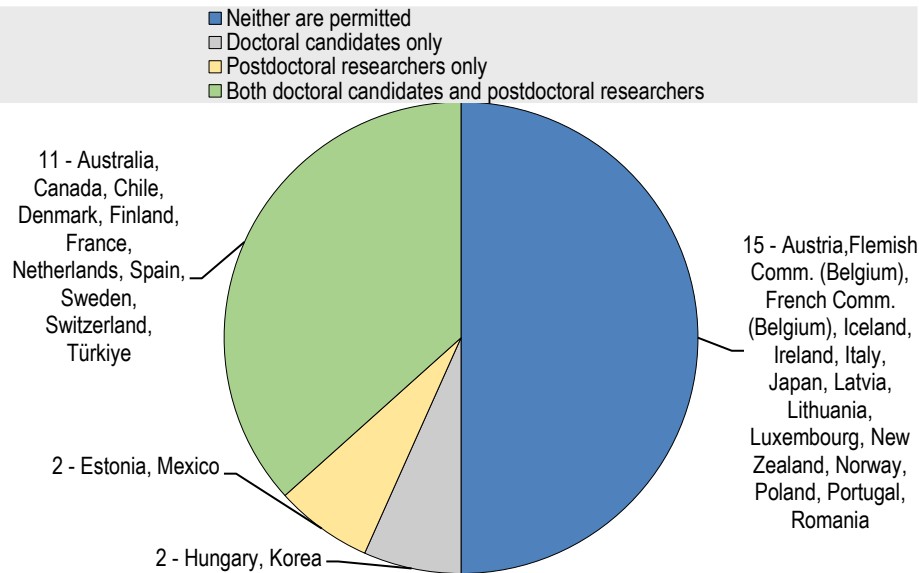
Note: Total jurisdictions responding = 30. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. See Annex Table A.6 for the exact survey questions and individual level answers corresponding to this figure.

In Korea and Hungary, ISCED 8 doctoral candidates may not pursue fully online programmes, but postdoctoral researchers can, while the reverse situation is in place in Estonia and Mexico (Figure 1.8). It is also important to note that in some jurisdictions, such as Norway, doctoral candidates and postdoctoral researchers are considered as HEI staff. In such cases, the question of online or on-campus work will be regulated in the work agreement between the individual doctoral candidate / postdoctoral researcher and their respective HEIs.

### *Incorporation of external online courses into existing higher education programmes is more accepted than outsourcing online education*

In some education systems, the development of online higher education has been partially facilitated by outsourcing and the establishment of partnerships between HEIs and private educational technology companies (EdTech) to benefit from their digital expertise.[10] For instance, online programme management companies seek to help HEIs achieve synergies and efficiencies in their delivery of online education.[11] Alternatively, HEIs may also choose to enhance their provision of formal online education through the integration of learning material from specialised online learning platforms such as Coursera or EdX.

In total, 21 of the 30 responding jurisdictions permit some form of outsourcing or partnership mechanisms for HEIs to develop and/or deliver formal online education. The integration of credit-bearing courses from

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[10] In the survey, outsourcing refers to: the practice of hiring a party external to a higher education institution (such as a private business) to perform services that were traditionally performed in-house by the institution's own employees.

[11] In the survey, online programme management (OPM) companies are defined as: companies providing products and services related to the provision of online courses and programmes on behalf of education institutions. OPMs may be involved in the design and delivery of learning material, or in associated activities such as student recruitment, assessment and work placements.

online learning platforms into HEI-delivered programmes is the most common form of partnership, with 19 jurisdictions allowing such courses to be integrated (Figure 1.9).

Figure 1.9. Outsourcing and online higher education

Permitted outsourcing modalities for HEIs to develop or deliver the provision of formal online education
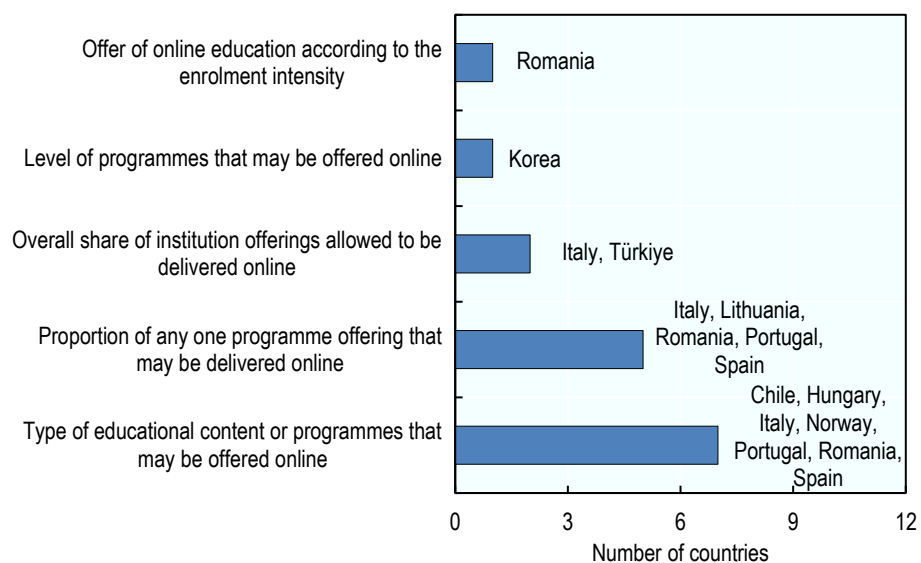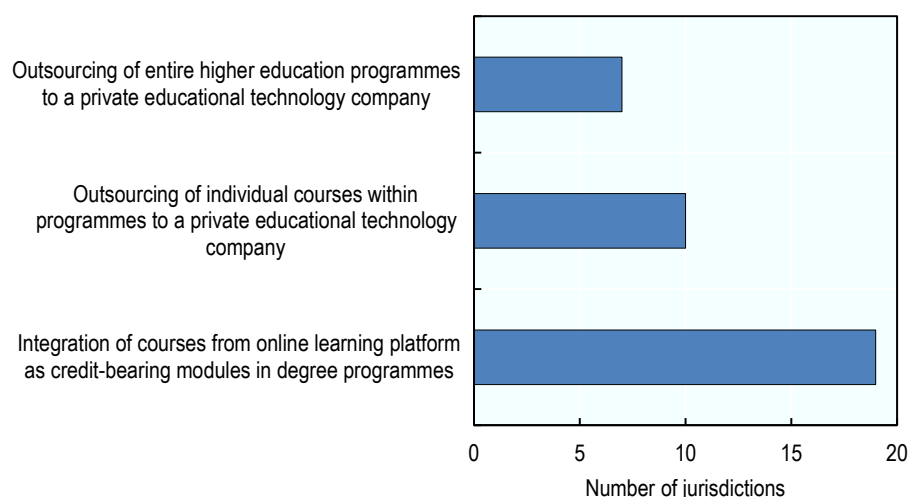

Note: Total jurisdictions responding = 30. See Annex Table A.6 for the exact survey questions and individual level answers corresponding to this figure.

Seven jurisdictions (Australia, the Flemish Community of Belgium, Canada, Chile, Mexico, New Zealand and Switzerland) permit outsourcing of entire programmes and individual courses to private EdTech companies as well as the integration of credit-bearing module courses from online learning platforms. France and Lithuania authorise the integration of courses from online platforms and the outsourcing of individual courses but not of entire programmes (Figure 1.9). Japan and New Zealand authorise the outsourcing of courses (and programmes in the case of New Zealand) but do not authorise the integration of courses from online learning platforms.

Overall, in terms of regulation, it should be noted that some respondents highlighted that the practices mentioned in the survey were not subject to any specific regulations, either permitting or disallowing the practice. For example, Estonia does not have any specific regulations relating to outsourcing, other than an expectation that HEIs should fulfill their responsibilities with respect to the quality of their programmes. Similarly in Lithuania, no specific regulation exists regarding the ability of PhD or postdoctoral researchers to work completely online.

Tables A.5 and A.6 in the Annex show individual responses to the survey's questions on regulation of online and hybrid education.

Quality assurance of digital education provision

Digitalisation is rarely accounted for in external quality assurance processes

As discussed earlier, the requirement of HEIs to carry out digitalisation-specific internal quality assurance processes is one of the policy levers jurisdictions have at their disposal to guide, evaluate or enhance digitalisation. In the survey ten jurisdictions require institutions to put such internal processes in place

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Countries may also have specific criteria related to digital education provision as part of their external quality assurance processes of HEIs. However, the survey results indicate that such criteria exist in only six countries (Italy, Mexico, New Zealand, Portugal, Romania and Spain - Figure 1.10). All six countries have specific criteria in place to ensure the existence of appropriate digital infrastructure, academic support for students studying online, pedagogical practices for the delivery of online material, the development of curriculum and learning material in a digital environment, teaching staff training and qualifications as well as the design of online courses or programmes.

As well as the criteria mentioned above, common to all six systems, Italy, New Zealand, Romania and Spain also have processes to assess HEIs' modalities for online student assessment while New Zealand, Portugal and Spain have specific quality assurance procedures for medical and/or mental health support for students enrolled in online programmes (Figure 1.10). Additionally, New Zealand and Portugal have processes related to online programme student admission criteria.

Figure 1.10. Digital higher education and quality assurance

Aspects of digital higher education covered by quality assurance criteria or evaluated in external quality assurance processes
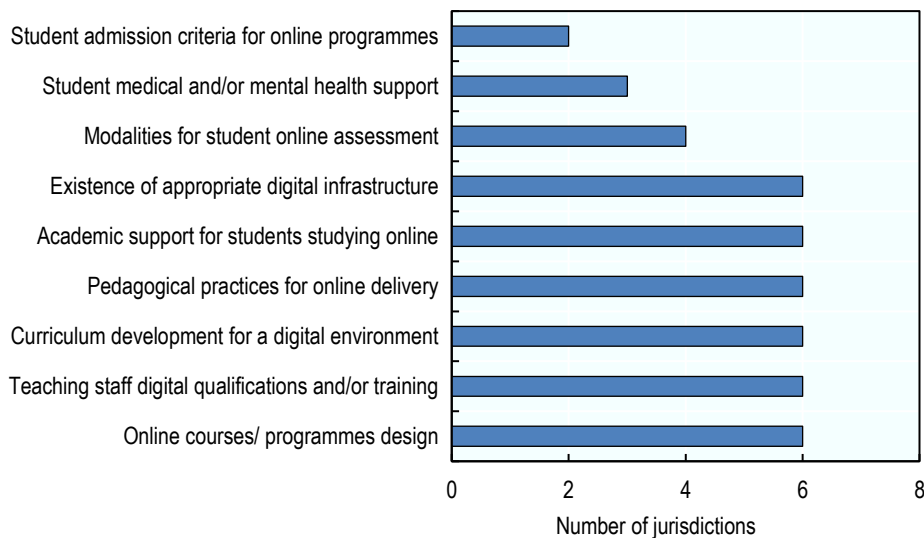
Note: Total jurisdictions responding = 30.

In addition, only six countries have developed specific quality assurance procedures for fully online programmes, with differences between them in how they compared to standards for traditional programmes. Standards for fully online programmes in Italy, Poland, Portugal and Spain include all standards for in-person programmes plus some additional requirements. On the other hand, Korea has a smaller set of standards in place for fully online programmes, while Japan has different set of standards for fully online and in-person programmes which overlap to some extent.

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2 Financial and human resources

This section focuses on the extent to which public authorities across the responding jurisdictions have developed policies regarding the financial and human resources aspects of digitalisation. As both traditional students and adult learners express greater interest in online and other more flexible higher education options, governments increasingly need to grapple with the question of how to adapt student support models to students participating in fully or partially online education. Governments are also concerned with the emergence of "digital divides" – inequity of access to the benefits of digital technologies, inside and beyond education systems. This section examines policies that can support wider access to online and hybrid education and presents the survey results related to building capacity of human resources for delivering high quality digital education.

Supports for students participating in digital learning

Students in fully online or hybrid programmes are eligible for similar grant and loan supports to campus-based students in most systems

Well-designed student support policies that take account of a range of potential study modes can help to ensure equity of access to online learning and/or digital technologies for all students. Figure 2.1 shows the eligibility status of higher education students for public grants or loans when enrolling in hybrid and fully online programmes, compared to in-person programmes.

In most responding systems, students studying in hybrid or fully online programmes are eligible for the same award/ loan amounts as campus-based students. In 25 out of 29 jurisdictions, students in hybrid programmes have the same entitlements to student support as students studying in-person, while this is the case for fully online students in 20 out of 25 jurisdictions (Figure 2.1). Students studying in hybrid mode in Chile and Mexico are entitled to a lower amount than in-person students, while students are entitled to certain categories of financial support only in Korea and Türkiye (e.g. tuition fees only, and not costs of accommodation). In Ireland, students studying in hybrid programmes are not eligible for grants.

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Figure 2.1. Grant and loan supports for students in online education

Student eligibility for public grant or loan awards when studying in hybrid or fully online programmes
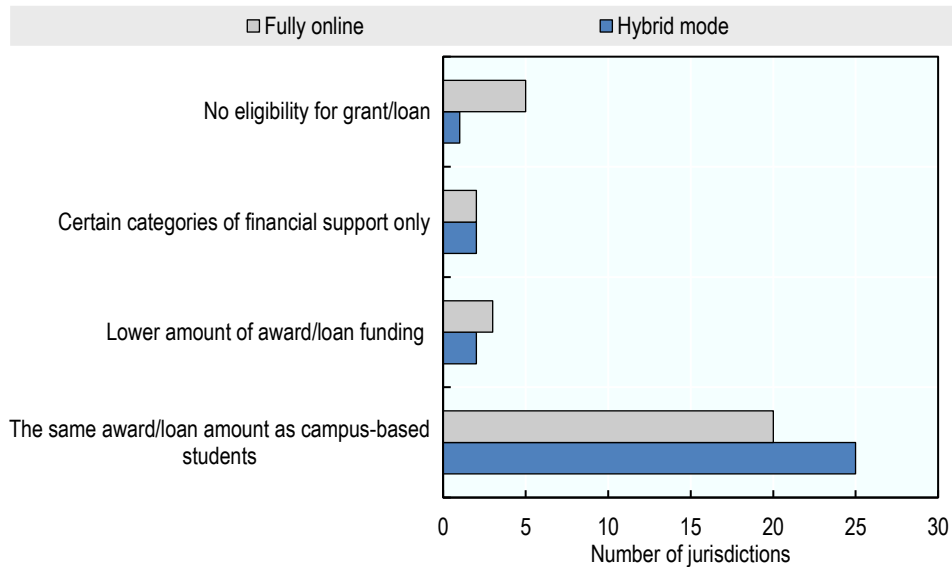
Note: Total jurisdictions responding = 30. See Annex Table A.7 for the exact survey questions and individual level answers corresponding to this figure.

Fully online students are entitled to a lower amount of award/loan than on-campus students in Japan, Korea and Mexico and entitled to certain categories of financial support only in Latvia and Türkiye. In five jurisdictions (Chile, Ireland, Lithuania, Portugal and Romania), students studying fully online are not entitled to public grants or loans at all.

Other supports for tackling digital divides are less common

As part of efforts to reduce digital divides in higher education, governments or other public bodies have the option to provide a range of services and supports in addition to grants and loans for students. The most common such support reported in the survey is public funding or loan schemes dedicated to hardware (e.g. laptops, tablets etc.) for learners, which is available in nine jurisdictions. Such loans can take the form of financial aid to purchase hardware equipment or loaning equipment to students. Six systems provide subsidised or free access to online higher education courses for which tuition fees are charged by the provider while five jurisdictions provide subsidised or free access to internet connectivity. Finally, four countries provide access to regional or "connected centres", which refer to physical sites where students may remotely access higher education provided online, with onsite academic support (Figure 2.2). In total, only 12 jurisdictions reported adopting at least one of the measures shown in Figure 2.2 with only France providing all the forms of support mentioned.

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Figure 2.2. Equity-enhancing supports for digitalisation in higher education

Publicly funded services or supports for learners intended to improve equity of access to online learning and/or digital technologies in higher education
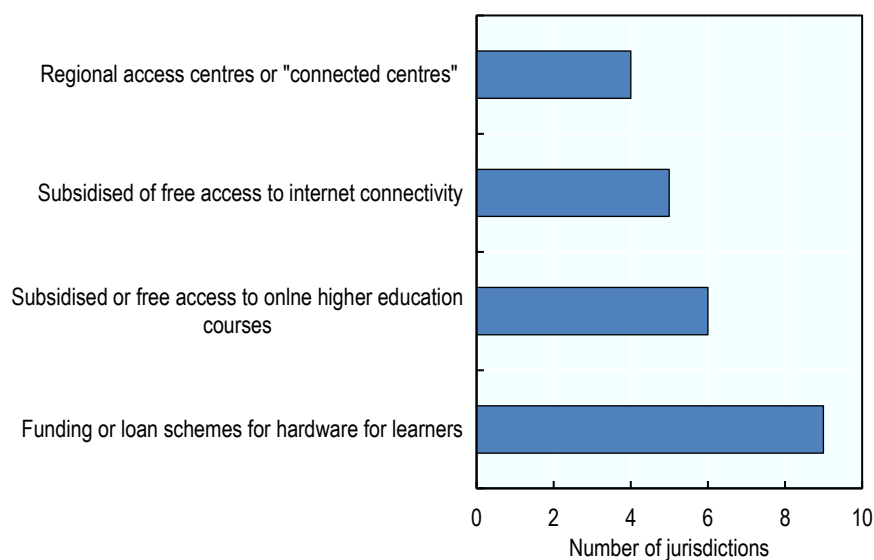
Note: Total jurisdictions responding = 30. See Annex Table A.8 for the exact survey questions and individual level answers corresponding to this figure.

Another way that public authorities can support digital learners is by funding or financially supporting the development or operation of online learning platforms. Such platforms may offer free certified courses or "freemium" courses[12], or provide open access to higher education learning materials or education resources as is the case in nine of jurisdictions (e.g. Austria, Iceland and Portugal). In seven countries (e.g. Canada, Chile and Japan) governments support both types of online platforms (Figure 2.3).

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[12] In the survey, "freemium" refers to: a situation whereby learning content for a course or programme is made freely available, but learners must pay a fee to be assessed and receive a certificate on completion.

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Figure 2.3. Publicly funded online learning tools[13]
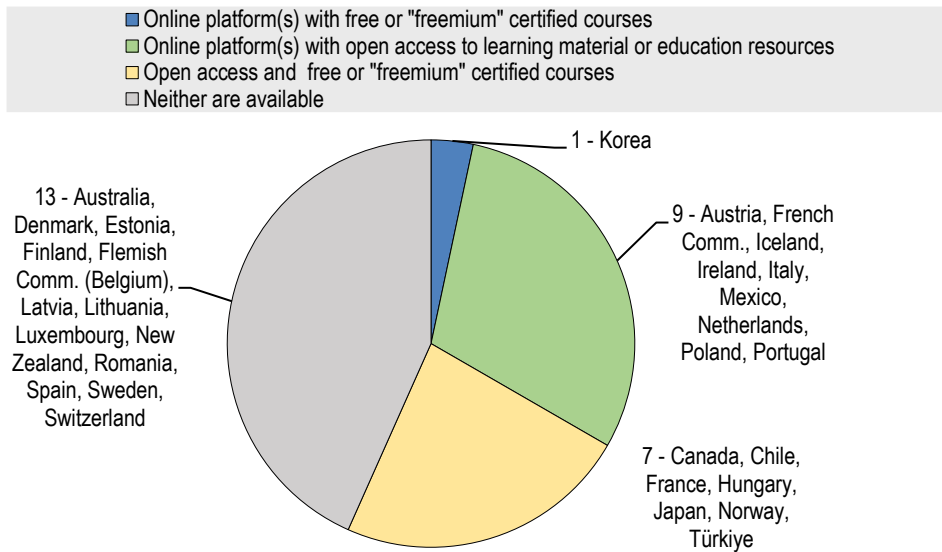
Note: Total jurisdictions responding = 30. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. See Annex Table A.8 for the exact survey questions and individual level answers corresponding to this figure.

Tables A.7 and A.8 in the Annex provide the breakdown of individual level responses to selected questions on supports for students participating in digital learning.

Institution funding for digital higher education

Across the responding jurisdictions, different tuition fee rules may apply, depending on whether students are enrolled in fully online and/or hybrid programmes or fully campus-based programmes. In some cases, public policy makers may permit or restrict HEIs in setting specific tuition fee rules for students in fully online or hybrid programmes. The following sections present key results from the survey questions related to institution funding for digital education from public authorities.

There is limited differentiation of tuition fees according to students' mode of study

In most jurisdictions, no specific tuition fee policy exists distinguishing between programmes' mode of delivery. This is the case in 19 out of the 27 jurisdictions where hybrid study programmes exist/ are permitted and 15 out of the 25 jurisdictions where fully online programmes exist/are permitted (Figure 2.4). On the other hand, nine jurisdictions have a mandatory requirement for HEIs to apply the same tuition fee rules to fully online and fully on-campus programmes. Except for Portugal, the same jurisdictions also make it compulsory for HEIs to apply the same tuition fee rules in hybrid as in fully campus-based programmes. For fully online programmes in Japan, public HEIs can charge fees of their choice up to a publicly-defined limit. Overall, this area of policy appears to be lightly regulated by public authorities, and where it is regulated, the most common approach appears to be to require equivalent tuition fee rules regardless of the mode of delivery.

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[13] "Funded" here refers to fully funded or substantially financially supported tools for learners.

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Figure 2.4. Tuition fee policies for online programmes in public institutions

Policies governing tuition fees charged to students enrolled in hybrid or fully online programmes
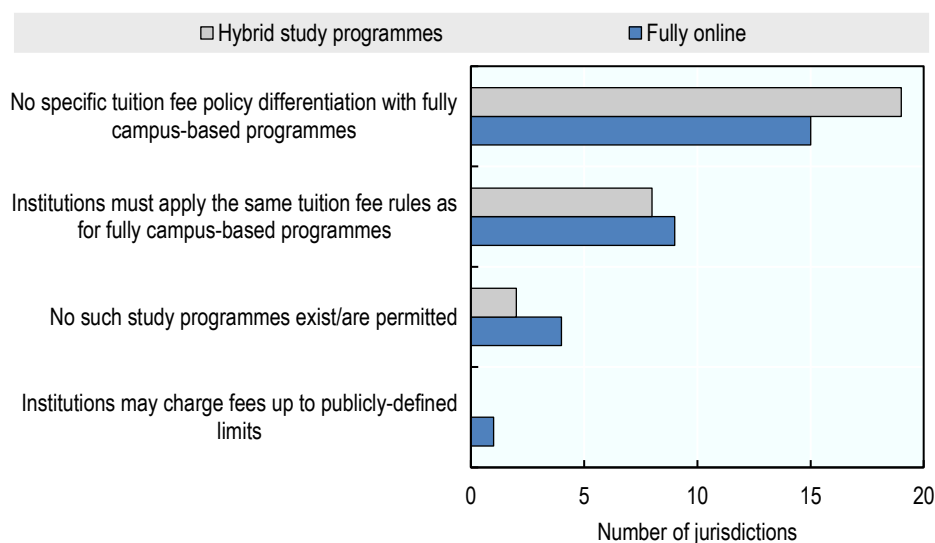
Note: Total jurisdictions responding = 29. See Annex Table A.9 for the exact survey questions and individual level answers corresponding to this figure.

The extent to which public authorities provide core public funding to institutions for online or hybrid programmes can influence incentives to develop such offerings.[14] Among the 20 responding jurisdictions that account for enrolments, study credits or degrees awarded in their funding model, an overwhelming majority treat students studying online or in hybrid format the same way as fully campus-based students. Only Ireland gives these students less weighting in the funding model (Figure 2.5).

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[14] Core public funding is defined as: financial resources provided by public authorities to support the sustained operations of higher education institutions. Frequently provided through one or more institutional grants, core public funding is nearly always intended to pay for operating expenses that institutions incur in providing instructional (educational) activities. Depending on the design of the funding system, core public funding grants may also cover some recurrent costs related to research (such as the salaries of staff who teach and conduct research) and capital expenditure.

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Figure 2.5. Financial allocations to HEIs from core public funding

Treatment of students studying online in the calculation of financial allocations to higher education institutions from core public funding relative to campus-based programmes

■ Enrolments, study credits or degrees awarded are not taken into account in the funding model
□ Enrolments/credits/degrees in online or hybrid programmes have less weighting in the funding model
□ Enrolments/credits/degrees in online or hybrid programmes are counted equivalently

19 - Austria, Denmark, Estonia, Finland,Flemish Comm. (Belgium), French Comm. (Belgium), Hungary, Iceland, Italy, Japan, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Spain, Sweden, Switzerland

8 - Chile, France, Korea, Latvia, Lithuania, Luxembourg, Portugal, Türkiye

1 - Ireland

Note: Total jurisdictions responding = 29. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. Canada is not represented in the chart because the answer varies by province and/or territory with some provinces treating enrolment in online or hybrid programmes equivalently and other provinces where the question does not apply. See Annex Table A.10 for the exact survey questions and individual level answers corresponding to this figure.

Targeted allocation of public funds is a commonly used means to develop digital capacity in higher education systems

Public authorities can help promote the development of HEIs' digital capacities by funding specific aspects of digitalisation, in the form of targeted funding or funding from special purpose or capital funds.[15] Except for Australia, Chile, Denmark and Lithuania, all the reporting jurisdictions have made such specific allocations in the five past years. The most common objectives for targeted public allocations among the responding jurisdictions are to develop open education resources (18 jurisdictions) or upgrading network connectivity (17 jurisdictions) (Figure 2.6).

Other common targets for funding include developing virtual learning environments (16 jurisdictions), Massive Open Online Courses (MOOCs) or MOOC platforms (15 jurisdictions) and improving the digital capabilities of staff or students (15 jurisdictions). Specific public funding allocations also were provided for the development of audio-visual equipment or facilities to record lectures to be disseminated online (14 jurisdictions), and the upgrading of learning management systems or of on-premises or end-user hardware (13 jurisdictions).

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[15] Targeted funding is defined as: amounts of money – in addition to core funding - awarded by public authorities or intermediate agencies (e.g. funding councils and research authorities) to higher education institutions that are allocated (earmarked) for a particular purpose, often linked to policy priorities. Targeted funding is typically allocated to institutions through competitive processes (e.g. through requests for proposals) or negotiations between public authorities and institutions. Funds that are "targeted" through parameters and weights in funding formulae are usually considered part of core funding, rather than "targeted funding".

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Figure 2.6. Public funding for digitalisation in HEIs

Aspects of digitalisation for which specific public funding has been made to higher education institutions in the five past years
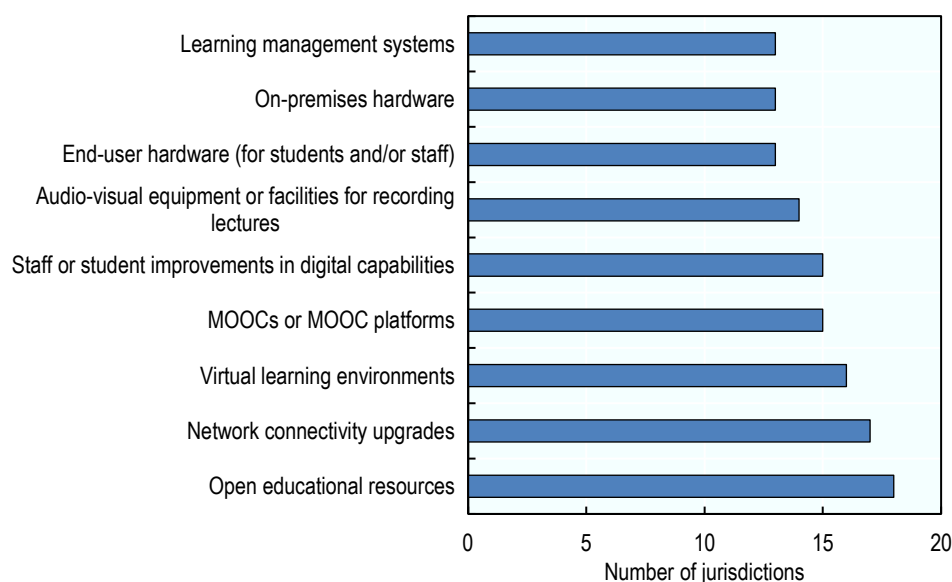
Note: Total jurisdictions responding = 30. See Annex Table A.10 for the exact survey questions and individual level answers corresponding to this figure.

Tables A.9 and A.10 in the Annex shows individual responses to selected questions on institution funding for digital higher education.

Human resources policies for digital education

A final aspect of resourcing digital education in higher education covered by this survey relates to human resources policies that can help to support the development of capabilities for teaching higher education courses in a digital environment.

Many jurisdictions provide specific resources aimed at developing digital capabilities

In total, 18 of the 30 responding jurisdictions have public authorities and/or publicly supported NGOs providing resources aimed at helping teaching staff in HEIs cultivate their digital capabilities (Figure 2.7).

The extent to which different types of resources are provided varies across jurisdictions. Resources are most often allocated for the development of open platforms to share educational material (16 jurisdictions). To a slightly lesser extent, public or publicly supported bodies provide platforms for sharing of digital pedagogical practices or training on digital pedagogy. Other resources supported include the development of toolkits or guidelines to help teaching staff in HEIs develop their digital skills (12 jurisdictions), or training on the use of relevant specific software or tools (10 jurisdictions).

The distribution of responses along this specific dimension of human resource policy suggests some degree of polarisation among countries in terms of supports provided. Overall, 12 jurisdictions provide none of the resources listed in Figure 2.7, while nine jurisdictions provide all of them.

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Figure 2.7. Public support for digital skills development of HEI staff

Type of resources provided by public authorities or publicly supported NGOs to cultivate digital capabilities in staff teaching in HEIs
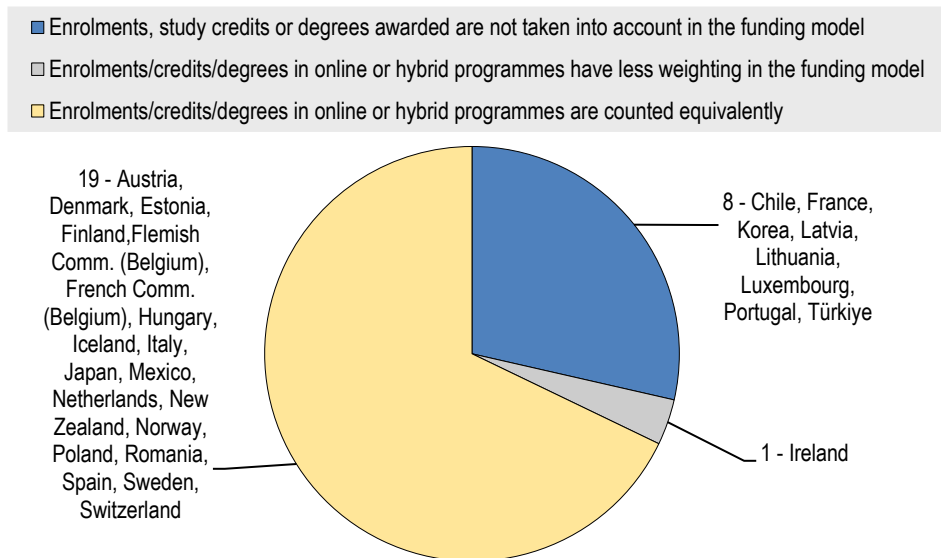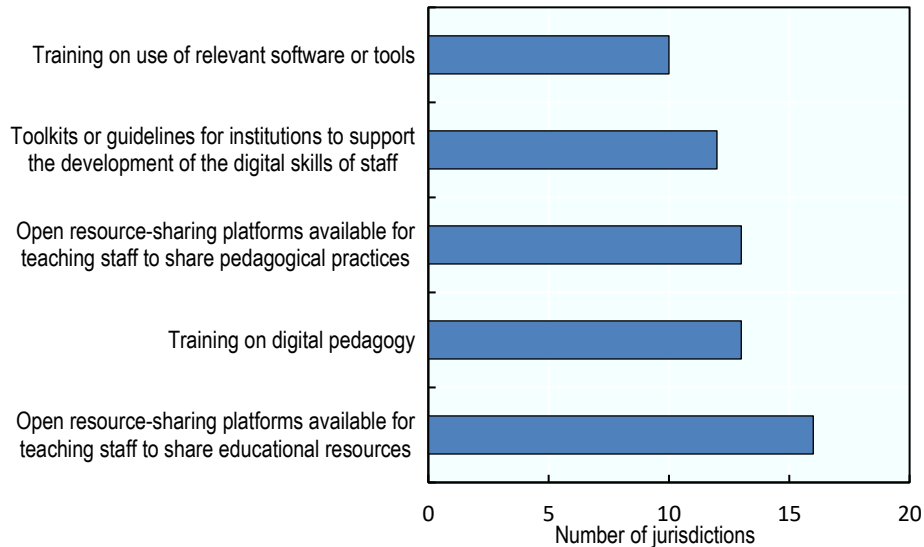

Note: Total jurisdictions responding = 30. See Annex Table A.11 for the exact survey questions and individual level answers corresponding to this figure.

Few systems provide dedicated space for teaching in a digital environment in their national qualification procedures or workload allocation models

Policies to foster and improve the digital capabilities of academic staff may include the integration of training on digital pedagogies in the qualification procedures for academic staff. In general, few countries have developed system- or subsystem-level teaching training or qualifications for academic staff. Eight responding countries indicated that they have such a nationally recognised teaching qualification in place for academic staff. Of those, only France, Korea, Romania and Spain have digital pedagogy as a specific component within this qualification, while Ireland, Poland, the Netherlands and Türkiye have a national qualification which does not specifically address teaching in a digital environment.

Countries can also support teaching staff working to develop their digital capacities by allowing space for developing material for digital environments as part of their workload allocation models. Among the 11 jurisdictions with a common system or subsystem-wide workload policy for academic staff, only 3 jurisdictions (Korea, Romania and Türkiye) allocate time specifically for the preparation of material for online or hybrid courses within workload models.

Innovation funds to support experimentation are by far the most common form of policy to support the development of digital capabilities in HEIs

While few measures are enshrined in system-level teaching qualifications or workload models, 18 jurisdictions have adopted at least one incentive or supporting policy aimed at enhancing digital capabilities of academic staff in HEIs (Figure 2.8). The most common policy is the creation of innovation funds to support experimentation with new digital tools and/ or pedagogies, which were reported in 16 jurisdictions. Nine jurisdictions have put in place publicly supported peer-learning networks focusing on digital pedagogy. Austria, Canada, France and Ireland provide awards or other recognition for staff demonstrating

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digital expertise or leadership. Additionally, Canada, Iceland, Ireland and Spain provide external or self-assessment resources for the evaluation of digital capabilities of teaching staff.

Figure 2.8. Incentivising policies to enhance digital capabilities in higher education institutions
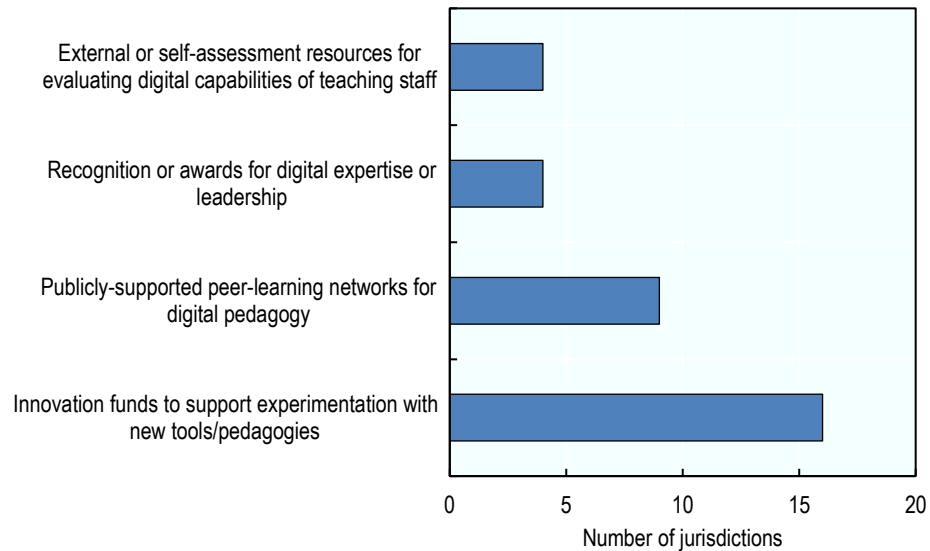
Note: Total jurisdictions responding = 30. See Annex Table A.11 for the exact survey questions and individual level answers corresponding to this figure.

Appendix table A.11 shows individual responses to the survey's questions on human resources for digital education

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OECD (2023), *Shaping Digital Education: Enabling Factors for Quality, Equity and Efficiency*, OECD Publishing, Paris, https://doi.org/10.1787/bac4dc9f-en. [1]

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Annex A. Tables of selected individual responses

Table A.1. Digitalisation policy at the system level – primary responsible actors

	Actors primarily responsible for setting system-level policies H = Higher Education Institution. P=Public/ central bodies (Ministry responsible for higher education, Technology/ Communication Ministry, NRENs, External quality assurance bodies). O: Other/ no clear responsibility								
	Policies regulating the mode of delivery of education programmes	Funding for higher education institutions to support digital education	Financial support for learners in fully online or hybrid degree programmes	Establishing, maintaining, and upgrading internet network connectivity for higher education institutions	Acquisition of Learning Management Systems or Virtual Learning Environments	Acquisition of technical equipment for use in higher education institutions	Setting system-wide standards for digital technologies used in higher education	Policies about training or professional development of teaching staff to deliver digital education	Policies governing data security, privacy and/or the use of algorithms to monitor learning activity
Australia	O	O	O	O	O	O	O	O	O
Austria	H	P	O	H	H	H	H	H	O
Canada	H	PH	P	H	H	H	H	H	H
Chile	H	P	H	H	H	H	P	H	H
Denmark	H	H	O	O	H	H	H	H	H
Estonia	H	P	O	H	H	H	H	P	O
Finland	H	P	O	O	H	H	O	H	H
Flemish Community of Belgium	H	P	P	H	H	H	O	H	H
France	H	P	P	H	H	H	H	H	H
French Community of Belgium	P	P	O	P	H	H	O	P	H
Hungary	P	P	H	P	H	H	P	H	P
Iceland	H	P	P	H	H	H	O	P	P

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	Actors primarily responsible for setting system-level policies H = Higher Education Institution. P=Public/ central bodies (Ministry responsible for higher education, Technology/ Communication Ministry, NRENs, External quality assurance bodies). O: Other/ no clear responsibility								
	Policies regulating the mode of delivery of education programmes	Funding for higher education institutions to support digital education	Financial support for learners in fully online or hybrid degree programmes	Establishing, maintaining, and upgrading internet network connectivity for higher education institutions	Acquisition of Learning Management Systems or Virtual Learning Environments	Acquisition of technical equipment for use in higher education institutions	Setting system-wide standards for digital technologies used in higher education	Policies about training or professional development of teaching staff to deliver digital education	Policies governing data security, privacy and/or the use of algorithms to monitor learning activity
Ireland	P	P	P	P	H	H	P	P	H
Italy	P	P	H	H	H	H	H	P	P
Japan	O	P	O	H	H	H	O	O	O
Korea	P	P	P	P	P	P	P	P	P
Latvia	P	P	O	H	H	H	O	H	O
Lithuania	P	H	O	H	O	H	O	H	H
Luxembourg	P	P	P	P	H	H	P	H	P
Mexico	H	H	H	H	H	H	H	H	H
Netherlands	H	P	H	P	H	H	P	H	P
New Zealand	P	P	P	H	H	H	O	H	O
Norway	P	P	P	P	P	H	P	P	P
Poland	P	P	O	P	O	P	O	P	O
Portugal	P	P	P	P	H	H	O	P	P
Romania	P	P	P	P	H	H	H	H	O
Spain	P	P	P	P	H	H	P	P	P
Sweden	H	P	P	H	H	H	O	H	H
Switzerland	H	P	O	H	H	H	O	O	H
Türkiye	P	P	P	H	H	H	P	H	H

Notes: In Canada, responses provided in the table may be applicable to some provinces and territories only. In Switzerland education - and higher education - lies mainly within the competence of the 26 Swiss Cantons. Each of them has its own Ministry of Education. At federal level, the Government has a subsidiary role. In Spain, central or public bodies may refer to Ministries or Regional Authorities in Autonomous Communities.

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Table A.2. Digitalisation policy at the system level - targets and objectives set by public bodies

	Elements of digitalisation for which public bodies set targets or objectives										
	Level of public investment in network connectivity and hardware	Level of public investment in software	Number or share of higher education programmes delivered fully online and/or in hybrid mode	Number or share of non-degree courses delivered fully online and/or in hybrid mode	Number or share of study credits delivered fully online and/or in hybrid mode	Number or share of enrolments delivered in fully online and/or in hybrid mode	Access to or use of open digital education resources	Standards or guidelines for interoperability of digital technologies	Verification of academic degrees using digital tools	Improving access to information for learners seeking digitally provided education	Creation of public platforms for digital courses
Australia											
Austria							✓	✓			✓
Canada											
Chile	✓	✓					✓				
Denmark											
Estonia											
Finland							✓	✓		✓	
Flemish Community of Belgium											
France	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
French Community of Belgium											
Hungary	✓	✓			✓		✓	✓			✓
Iceland								✓		✓	
Ireland							✓	✓		✓	
Italy	✓	✓	✓		✓		✓	✓	✓	✓	✓
Japan							✓				
Korea	✓	✓									
Latvia	✓										
Lithuania											
Luxembourg								✓	✓	✓	✓

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	Elements of digitalisation for which public bodies set targets or objectives										
	Level of public investment in network connectivity and hardware	Level of public investment in software	Number or share of higher education programmes delivered fully online and/or in hybrid mode	Number or share of non-degree courses delivered fully online and/or in hybrid mode	Number or share of study credits delivered fully online and/or in hybrid mode	Number or share of enrolments delivered in fully online and/or in hybrid mode	Access to or use of open digital education resources	Standards or guidelines for interoperability of digital technologies	Verification of academic degrees using digital tools	Improving access to information for learners seeking digitally provided education	Creation of public platforms for digital courses
Mexico											
Netherlands	✓						✓	✓			
New Zealand											
Norway							✓	✓	✓	✓	
Poland	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Portugal						✓	✓		✓		✓
Romania											
Spain	✓						✓			✓	✓
Sweden											
Switzerland								✓			
Türkiye	✓						✓				

Notes: In Norway, ISCED 5 is not part of higher education. However, a large share of the ISCED 5 offer is fully online or hybrid, and those students, too, are entitled to full grants in the State Educational Loan Fund.

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Table A.3. Digitalisation policy at the system level - policy levers

	Policy levers in place to guide, evaluate or enhance digitalisation in higher education institutions						
	Institutions are required to include specific measures related to digital education in their internal quality assurance processes	Institutions are encouraged to develop coherent institution-wide strategies for digital education	Data are collected at jurisdiction level about student experiences with digital education tools and/or modes of delivery	Data are collected at jurisdiction level about academic staff experiences with digital education tools and/or modes of delivery	There are public regulations or guidelines on supporting the mental health and well-being of students studying online	There are frameworks available for shared procurement of digital infrastructure and/or services	There are public regulations or guidelines on the ethical use of data and algorithms in the delivery of higher education
Australia							
Austria		✓	✓				
Canada	✓	✓	✓		✓	✓	✓
Chile	✓	✓				✓	✓
Denmark							
Estonia						✓	✓
Finland						✓	
Flemish Community of Belgium		✓			✓		
France	✓	✓	✓	✓	✓	✓	✓
French Community of Belgium		✓					
Hungary	✓	✓				✓	✓
Iceland		✓					✓
Ireland	✓	✓	✓	✓		✓	✓
Italy	✓	✓	✓	✓	✓	✓	✓
Japan							
Korea					✓	✓	
Latvia							
Lithuania							
Luxembourg	✓	✓				✓	

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	Policy levers in place to guide, evaluate or enhance digitalisation in higher education institutions						
	Institutions are required to include specific measures related to digital education in their internal quality assurance processes	Institutions are encouraged to develop coherent institution-wide strategies for digital education	Data are collected at jurisdiction level about student experiences with digital education tools and/or modes of delivery	Data are collected at jurisdiction level about academic staff experiences with digital education tools and/or modes of delivery	There are public regulations or guidelines on supporting the mental health and well-being of students studying online	There are frameworks available for shared procurement of digital infrastructure and/or services	There are public regulations or guidelines on the ethical use of data and algorithms in the delivery of higher education
Mexico	✓	✓					
Netherlands						✓	✓
New Zealand					✓		✓
Norway		✓	✓	✓		✓	✓
Poland	✓	✓	✓	✓			
Portugal		✓					✓
Romania	✓	✓	✓	✓			✓
Spain		✓	✓		✓	✓	
Sweden			✓		✓	✓	
Switzerland		✓					
Türkiye						✓	✓

Notes: In Canada, responses provided in the table may be applicable to some provinces and territories only.

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Unclassified

Table A.4. Digitalisation policy at the system level - data collection and generation

	Aspects of digitalisation subject to official data collection and/or generation of statistics by public authorities						
	Number of students enrolled in hybrid or fully online formal higher education programmes	Number of study credits completed in hybrid or fully online format	Expenditure on digital infrastructure, tools and services by HEIs	Digital capabilities of teaching staff	Digital capabilities of students	Progression and completion rates of students by mode of delivery	Labour market outcomes of graduates, by mode of delivery of their programmes
Australia							
Austria			✓				
Canada	✓	✓				✓	✓
Chile	✓		✓				
Denmark							
Estonia	✓						
Finland							
Flemish Community of Belgium							
France							
French Community of Belgium							
Hungary			✓				
Iceland	✓					✓	
Ireland	✓	✓		✓	✓	✓	✓
Italy	✓	✓	✓	✓		✓	✓
Japan							
Korea			✓	✓			
Latvia	✓						
Lithuania							
Luxembourg	✓	✓	✓				
Mexico	✓					✓	
Netherlands							
New Zealand	✓	✓				✓	✓

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	Aspects of digitalisation subject to official data collection and/or generation of statistics by public authorities						
	Number of students enrolled in hybrid or fully online formal higher education programmes	Number of study credits completed in hybrid or fully online format	Expenditure on digital infrastructure, tools and services by HEIs	Digital capabilities of teaching staff	Digital capabilities of students	Progression and completion rates of students by mode of delivery	Labour market outcomes of graduates, by mode of delivery of their programmes
Norway	✓						
Poland	✓	✓	✓			✓	
Portugal	✓						
Romania						✓	✓
Spain	✓	✓	✓			✓	✓
Sweden	✓	✓				✓	
Switzerland	✓						
Türkiye	✓			✓			

Notes: In Canada, responses provided in the table may be applicable to some provinces and territories only.

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Table A.5. Regulation of online education provision – authorisation procedures

		New study programme authorisation at bachelor's degree level							
	No programme-level authorisation of new study programmes by external bodies	Hybrid study programmes				Fully online study programmes			
		Programmes not permitted	No standards or procedures have been established	The same standards and procedures as in-person programmes are applied	Distinct standards and procedures are applied	Programmes not permitted	No standards or procedures have been established	The same standards and procedures as in-person programmes are applied	Distinct standards and procedures are applied
Australia				✓				✓	
Austria	✓								
Canada				✓				✓	
Chile				✓					
Denmark				✓				✓	
Estonia	✓								
Finland	✓								
Flemish Community of Belgium				✓				✓	
France				✓				✓	
French Community of Belgium			✓				✓		
Hungary	✓								
Iceland	✓								
Ireland				✓				✓	
Italy					✓				✓
Japan			✓						✓
Korea			✓					✓	
Latvia				✓				✓	
Lithuania				✓	✓				

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	No programme-level authorisation of new study programmes by external bodies	Hybrid study programmes				Fully online study programmes			
		Programmes not permitted	No standards or procedures have been established	The same standards and procedures as in-person programmes are applied	Distinct standards and procedures are applied	Programmes not permitted	No standards or procedures have been established	The same standards and procedures as in-person programmes are applied	Distinct standards and procedures are applied
Luxembourg				✓			✓		
Mexico	✓								
Netherlands			✓				✓		
New Zealand					✓				✓
Norway	✓								
Poland			✓				✓		
Portugal			✓						✓
Romania					✓	✓			
Spain				✓				✓	
Sweden			✓				✓		
Switzerland	✓								
Türkiye	✓								

Notes: In Canada, responses provided in the table may be applicable to some provinces and territories only.

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Table A.6. Other aspects of regulation of online education provision

	Recognised fully online higher education providers:			Elements related to delivery of online education subject to government -imposed restrictions					Means for higher education institutions to develop or deliver the provision of formal online education			Researchers permitted to pursue programmes/ project completely online	
	Public or government-dependent private fully online providers	Independent private non-profit fully online providers	Independent private for-profit fully online providers	Limitations on the overall share of institution offerings allowed to be delivered online	Limitations on the proportion of any one programme offering that may be delivered online	Limitations on the type of educational content or programmes that may be offered online	Limitations on the level of programmes that may be offered as online education	Limitations on the offer of online education according to the enrolment intensity of study of the programme	Outsourcing of individual courses within programmes to a private educational technology company	Outsourcing of entire higher education programmes to a private educational technology company	Integration of courses from online learning platforms as credit-bearing modules in degree programmes	Doctoral candidates	Postdoctoral candidates
Australia	✓	✓	✓						✓	✓	✓	✓	✓
Austria											✓		
Canada	✓	✓	✓						✓	✓	✓	✓	✓
Chile						✓			✓	✓	✓	✓	✓
Denmark												✓	✓
Estonia	✓	✓	✓								✓	✓	
Finland											✓	✓	✓
Flemish Community of Belgium									✓	✓	✓		
France	✓	✓	✓						✓		✓	✓	✓
French Community of Belgium	✓												
Hungary	✓					✓					✓		✓
Iceland											✓		
Ireland		✓	✓										
Italy	✓	✓	✓	✓	✓	✓					✓		
Japan	✓		✓						✓				

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	Recognised fully online higher education providers:			Elements related to delivery of online education subject to government-imposed restrictions					Means for higher education institutions to develop or deliver the provision of formal online education			Researchers permitted to pursue programmes/ project completely online	
	Public or government-dependent private fully online providers	Independent private non-profit fully online providers	Independent private for-profit fully online providers	Limitations on the overall share of institution offerings allowed to be delivered online	Limitations on the proportion of any one programme offering that may be delivered online	Limitations on the type of educational content or programmes that may be offered online	Limitations on the level of programmes that may be offered as online education	Limitations on the offer of online education according to the enrolment intensity of study of the programme	Outsourcing of individual courses within programmes to a private educational technology company	Outsourcing of entire higher education programmes to a private educational technology company	Integration of courses from online learning platforms as credit-bearing modules in degree programmes	Doctoral candidates	Postdoctoral candidates
Korea		✓					✓						✓
Latvia													
Lithuania					✓				✓		✓		
Luxembourg											✓		
Mexico	✓	✓	✓						✓	✓	✓	✓	
Netherlands	✓	✓	✓								✓	✓	✓
New Zealand									✓	✓			
Norway						✓					✓		
Poland	✓	✓	✓										
Portugal	✓	✓	✓		✓	✓							
Romania					✓	✓		✓					
Spain	✓	✓	✓		✓	✓					✓	✓	✓
Sweden											✓	✓	✓
Switzerland	✓	✓	✓						✓	✓	✓	✓	✓
Türkiye	✓			✓								✓	✓

Notes: In Canada, responses provided in the table may be applicable to some provinces and territories only. Some of the limitations applied by governments may relate to very specific cases only. For example, in Norway, limitations on the type of educational content or programmes that may be offered online is restricted to in-service training in professional programmes (i.e. in schools and hospitals, etc., for future teacher, doctors and nurses.), and experiments in laboratories.

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Table A.7. Supports for students participating in digital learning – Eligibility status for public grants, loan supports and award/loan amounts from public grant or loan system

	Eligibility status for public grants or loan supports = students are entitled to the same supports as campus-based students (subject to standard eligibility criteria) ×: students are not eligible to any supports/ grants for this mode of delivery < students are eligible for reduced grants/ loan supports, compared to campus-based students.						Eligibility for award/ loan amount from public grant or loan systems available to students in hybrid or fully online programmes = Students are entitled to the same award/loan amount as campus-based students ×: Not applicable (no eligibility for grant/loan for tis delivery mode) < Students are entitled to a lower amount of award/loan funding than campus-based students ~ Students are entitled to certain categories of financial support only (e.g. for tuition fees only)	
	ISCED 5		ISCED 6		ISCED 7			
	Hybrid	Fully online	Hybrid	Fully online	Hybrid	Fully online	Hybrid programmes	Fully online programmes
Australia	=	=	=	=	=	=	=	=
Austria			=	=	=	=	=	=
Canada	=	=	=	=	=	=	=	=
Chile	<	<	<	<	<	<	<	×
Denmark	=	=	=	=	=	=	=	=
Estonia			=	=	=	=	=	=
Finland	=	=	=	=	=	=	=	=
Flemish Community of Belgium	=	=	=	=	=	=	=	=
France	=	=	=	=	=	=	=	=
French Community of Belgium	=	=	=	=	=	=	=	=
Hungary	=	=	=	=	=	=	=	=
Iceland	=	=	=	=	=	=	=	=
Ireland	×	×	×	×	×	×	×	×
Italy			=	=	=	=	=	=
Japan	=	<	=	<	=	=	=	<
Korea	= <	<					~	<

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	Eligibility status for public grants or loan supports						Eligibility for award/ loan amount from public grant or loan systems available to students in hybrid or fully online programmes	
	= students are entitled to the same supports as campus-based students (subject to standard eligibility criteria) ×: students are not eligible to any supports/ grants for this mode of delivery < students are eligible for reduced grants/ loan supports, compared to campus-based students.						= Students are entitled to the same award/loan amount as campus-based students ×: Not applicable (no eligibility for grant/loan for tis delivery mode) < Students are entitled to a lower amount of award/loan funding than campus-based students ~ Students are entitled to certain categories of financial support only (e.g. for tuition fees only)	
	ISCED 5		ISCED 6		ISCED 7			
	Hybrid	Fully online	Hybrid	Fully online	Hybrid	Fully online	Hybrid programmes	Fully online programmes
Latvia	=		=		=		=	~
Lithuania			=		=		=	×
Luxembourg	=	=	=	=	=	=	=	=
Mexico	=	<	=	<	<	<	<	<
Netherlands	=	=	=	=	=	=	=	=
New Zealand	=	=	=	=	=	=	=	=
Norway			=	=	=	=	=	=
Poland	=	=	=	=	=	=	=	=
Portugal	=	×	=	×	=	×	=	×
Romania	=		=		=		=	× / ×
Spain	=	=	=	=	=	=	=	= / =
Sweden	=	=	=	=	=	=	=	= / =
Switzerland			=	=	=	=	=	= / =
Türkiye	= <	= <	=	=	=	=	~	~

Notes: In Canada, responses provided in the table may be applicable to some provinces and territories only.

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Unclassified

Table A.8. Supports for students participating in digital learning – publicly-funded services and funding of specific tools for learners

	Publicly funded or publicly provided services or supports that are intended to improve equity of access to online learning and/or digital technologies in higher education?				Which of the following tools for learners are fully funded or substantially financially supported by public authorities?	
	Funding or loan schemes for hardware for learners	Subsidised or free access to internet connectivity	Subsidised or free access to online higher education courses for which tuition fees are charged by the provider.	Regional access centres or "connected centres" physical sites where students may remotely access higher education provided online, with onsite academic support	Online platform(s) with free or "freemium" certified courses from higher education providers	Online platform(s) with open access to learning material or education resources from higher education providers
Australia				✓		
Austria						✓
Canada	✓	✓		✓	✓	✓
Chile					✓	✓
Denmark						
Estonia						
Finland						
Flemish Community of Belgium						
France	✓	✓	✓	✓	✓	✓
French Community of Belgium	✓	✓	✓			✓
Hungary			✓	✓	✓	✓
Iceland						✓
Ireland	✓		✓			✓
Italy	✓	✓				✓
Japan					✓	✓
Korea	✓				✓	
Latvia						
Lithuania						
Luxembourg						
Mexico						✓
Netherlands						✓
New Zealand						

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	Publicly funded or publicly provided services or supports that are intended to improve equity of access to online learning and/or digital technologies in higher education?				Which of the following tools for learners are fully funded or substantially financially supported by public authorities?	
	Funding or loan schemes for hardware for learners	Subsidised or free access to internet connectivity	Subsidised or free access to online higher education courses for which tuition fees are charged by the provider.	Regional access centres or "connected centres" physical sites where students may remotely access higher education provided online, with onsite academic support	Online platform(s) with free or "freemium" certified courses from higher education providers	Online platform(s) with open access to learning material or education resources from higher education providers
Norway					✓	✓
Poland		✓	✓			✓
Portugal						✓
Romania	✓					
Spain	✓					
Sweden						
Switzerland						
Türkiye	✓		✓		✓	✓

Notes: In Canada, responses provided in the table may be applicable to some provinces and territories only.

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Table A.9. Tuition fee policies for online programmes in public higher education institutions

	Policies governing tuition fees charged to students enrolled in hybrid or fully online programmes in public higher education institutions for residents of the jurisdiction							
	Hybrid programmes				Fully online programmes			
	No specific tuition fee policy differentiation with fully campus-based programmes	Institutions must apply the same tuition fee rules as for campus-based programmes	Institutions may charge fees up to publicly-defined limits	No such study programmes exist/ are permitted	No specific tuition fee policy differentiation with fully campus-based programmes	Institutions must apply the same tuition fee rules as for campus-based programmes	Institutions may charge fees up to publicly-defined limits	No such study programmes exist/ are permitted
Australia								
Austria	✓				✓			
Canada	✓				✓			
Chile	✓				✓			
Denmark	✓				✓			
Estonia		✓				✓		
Finland	✓				✓			
Flemish Community of Belgium				✓				✓
France		✓				✓		
French Community of Belgium		✓				✓		
Hungary	✓				✓			
Iceland		✓				✓		
Ireland	✓							✓
Italy		✓				✓		
Japan	✓						✓	
Korea		✓				✓		
Latvia	✓				✓			
Lithuania			✓					✓

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	Policies governing tuition fees charged to students enrolled in hybrid or fully online programmes in public higher education institutions for residents of the jurisdiction							
	Hybrid programmes				Fully online programmes			
	No specific tuition fee policy differentiation with fully campus-based programmes	Institutions must apply the same tuition fee rules as for campus-based programmes	Institutions may charge fees up to publicly-defined limits	No such study programmes exist/ are permitted	No specific tuition fee policy differentiation with fully campus-based programmes	Institutions must apply the same tuition fee rules as for campus-based programmes	Institutions may charge fees up to publicly-defined limits	No such study programmes exist/ are permitted
Luxembourg		✓				✓		
Mexico	✓				✓			
Netherlands		✓				✓		
New Zealand	✓				✓			
Norway	✓				✓			
Poland	✓				✓			
Portugal	✓					✓		
Romania	✓							✓
Spain	✓				✓			
Sweden	✓				✓			
Switzerland	✓				✓			
Türkiye	✓				✓			

Notes: In Canada, responses provided in the table may be applicable to some provinces and territories only.

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Unclassified

Table A.10. Institution funding for digital higher education – financial allocations and other resources

	How are students studying online treated in the calculation of financial allocations to higher education institutions from core public funding, which take enrolments, study credits or degrees awarded into account?			For which of the following aspects of digitalisation have specific public allocations been made to higher education institutions in the past 5 years (e.g. from targeted, special-purpose or capital funds, or provided directly by a central body)?								
	× Not applicable (enrolments, study credits or degrees awarded are not considered in the funding model)	= Enrolments/credits/degrees in online or hybrid programmes are counted equivalently to campus-based programmes in the funding model	< Enrolments/credits/degrees in online or hybrid programmes have less weighting in the funding model than those in campus-based programmes	End-user hardware (for students and/or staff)	On-premises hardware	Audio-visual equipment or facilities for recording lectures	Network connectivity upgrades	Virtual learning environments	Learning management systems	Open educational resources	MOOCs or MOOC platforms	Staff or student improvements in digital capabilities
Australia												
Austria		=						✓		✓	✓	
Canada	×	=		✓	✓	✓	✓	✓	✓	✓	✓	✓
Chile	×											
Denmark		=										
Estonia		=									✓	✓
Finland		=					✓			✓		
Flemish Community of Belgium		=		✓	✓	✓	✓	✓	✓	✓	✓	✓
France	×			✓	✓	✓	✓	✓	✓	✓	✓	✓
French Community of Belgium		=		✓	✓	✓	✓	✓	✓	✓	✓	✓
Hungary		=		✓	✓	✓	✓	✓	✓	✓	✓	✓
Iceland		=						✓				
Ireland			<	✓		✓		✓	✓	✓		✓
Italy		=		✓	✓	✓	✓	✓	✓	✓	✓	✓
Japan		=		✓					✓	✓	✓	
Korea	×			✓								
Latvia	×					✓	✓					✓
Lithuania	×											

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	How are students studying online treated in the calculation of financial allocations to higher education institutions from core public funding, which take enrolments, study credits or degrees awarded into account?			For which of the following aspects of digitalisation have specific public allocations been made to higher education institutions in the past 5 years (e.g. from targeted, special-purpose or capital funds, or provided directly by a central body)?								
	× Not applicable (enrolments, study credits or degrees awarded are not considered in the funding model)	= Enrolments/credits/degrees in online or hybrid programmes are counted equivalently to campus-based programmes in the funding model	< Enrolments/credits/degrees in online or hybrid programmes have less weighting in the funding model than those in campus-based programmes	End-user hardware (for students and/or staff)	On-premises hardware	Audio-visual equipment or facilities for recording lectures	Network connectivity upgrades	Virtual learning environments	Learning management systems	Open educational resources	MOOCs or MOOC platforms	Staff or student improvements in digital capabilities
Luxembourg	×				✓	✓	✓		✓		✓	✓
Mexico		=			✓	✓	✓	✓	✓	✓		
Netherlands		=					✓			✓		
New Zealand		=		✓								
Norway		=				✓	✓	✓		✓		
Poland		=		✓	✓	✓	✓	✓	✓	✓	✓	✓
Portugal	×						✓			✓	✓	
Romania		=			✓	✓	✓	✓	✓	✓		✓
Spain		=		✓	✓	✓	✓	✓	✓	✓	✓	✓
Sweden		=									✓	✓
Switzerland		=						✓		✓	✓	✓
Türkiye	×			✓	✓	✓	✓					

Notes: In Canada, different responses provided in the table may be applicable, depending on the specific province/territory. The answers for Australia on calculation of financial allocations to HEIs (first three columns of the Table) were missing.

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Table A.11. Human resources policies for digital education

	Type of resources provided by public authorities or publicly supported NGOs to cultivate digital capabilities in staff teaching in higher education institutions					Is digital pedagogy specifically covered in the curriculum for the teaching qualification:		Is the delivery of education through digital means taken specifically into account in workload allocation models for teaching staff?				Incentivising or supporting policies to enhance digital capabilities in higher education institutions			
	Training on digital pedagogy	Training on use of relevant software or tools	Toolkits or guidelines for institutions to support the development of the digital skills of staff	Open resource-sharing platforms available for teaching staff to share pedagogical practices	Open resource-sharing platforms available for teaching staff to share educational resources	×: no nationally recognised teaching qualification for academic staff)	Yes	×: NA (no common system or subsystem-wide workload policy for academic staff)	Time is allocated within workload models specifically for the preparation of material for	Time is allocated within workload models for the delivery of online/hybrid courses	No specific recognition of digital instruction in the workload allocation model	Innovation funds to support experimentation with new tools/pedagogies	Publicly supported peer-learning networks for digital pedagogy	External or self-assessment resources for evaluating digital capabilities of teaching staff	Recognition or awards for digital expertise or leadership
Australia			✓	✓	✓	×		×							
Austria					✓	×		×							✓
Canada	✓	✓	✓	✓	✓	×		×					✓	✓	✓	✓
Chile						×						✓	✓		
Denmark						×		×							
Estonia						×		×							
Finland						×						✓	✓		
Flemish Community of Belgium						×		×				✓			
France	✓	✓	✓	✓	✓		✓	×				✓	✓		✓
French Community of Belgium	✓	✓	✓	✓	✓	×		×				✓	✓		
Hungary	✓	✓	✓	✓	✓	×						✓	✓	✓	
Iceland						×						✓		✓	
Ireland	✓	✓	✓	✓	✓			×				✓	✓	✓	✓
Italy	✓	✓	✓	✓	✓	×		×				✓			

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	Type of resources provided by public authorities or publicly supported NGOs to cultivate digital capabilities in staff teaching in higher education institutions					Is digital pedagogy specifically covered in the curriculum for the teaching qualification:		Is the delivery of education through digital means taken specifically into account in workload allocation models for teaching staff?				Incentivising or supporting policies to enhance digital capabilities in higher education institutions			
	Training on digital pedagogy	Training on use of relevant software or tools	Toolkits or guidelines for institutions to support the development of the digital skills of staff	Open resource-sharing platforms available for teaching staff to share pedagogical practices	Open resource-sharing platforms available for teaching staff to share educational resources	x: no nationally recognised teaching qualification for academic staff	Yes	x: NA (no common system or subsystem-wide workload policy for academic staff)	Time is allocated within workload models specifically for the preparation of material for	Time is allocated within workload models for the delivery of online/hybrid courses	No specific recognition of digital instruction in the workload allocation model	Innovation funds to support experimentation with new tools/pedagogies	Publicly supported peer-learning networks for digital pedagogy	External or self-assessment resources for evaluating digital capabilities of teaching staff	Recognition or awards for digital expertise or leadership
Japan						×		×							
Korea	✓						✓		✓				✓		
Latvia						×		×							
Lithuania						×					✓				
Luxembourg	✓	✓				×		×							
Mexico					✓	×		×							
Netherlands			✓	✓	✓			×					✓	✓	
New Zealand						×		×							
Norway				✓	✓	×		×					✓		
Poland	✓	✓	✓	✓	✓			×					✓		
Portugal						×					✓				
Romania	✓				✓		✓		✓				✓		
Spain	✓	✓	✓	✓	✓		✓					✓	✓	✓	✓
Sweden						×							✓		
Switzerland	✓	✓	✓	✓	✓	×		×					✓	✓	
Türkiye	✓		✓	✓	✓				✓					✓	

Notes: In Canada, responses provided in the table may be applicable to some provinces and territories only

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