Promoting green and digital innovation: the role of upskilling and reskilling in higher education

This is the last in a series of four analytical reports prepared by the OECD Higher Education Policy Team on the role of higher education in developing competencies that support innovation for the digital and green transitions. These reports support knowledge exchange within the **Education and Innovation Practice Community (EIPC)** – an initiative implemented by the OECD and funded by the European Commission as part of the New European Innovation Agenda, Flagship 4 "Fostering, attracting and retaining deep tech talent".

This report focuses on the third key question addressed by the EIPC: how governments can facilitate the provision and uptake of high-quality, relevant and targeted upskilling or reskilling opportunities in higher education to allow adults to develop competencies that support green and digital innovation.

It describes four ways in which public authorities can promote upskilling and reskilling in higher education to contribute to the green and digital transitions:

1. **Setting system-wide strategies:** developing national strategies to guide higher education institutions and foster an environment conducive to delivering upskilling and reskilling opportunities in alignment with labour market needs.
2. **Supporting higher education-based upskilling and reskilling provision:** devising policies to encourage the provision of responsive and high-quality upskilling and reskilling opportunities in higher education.
3. **Attracting and supporting learners:** enhancing participation in upskilling and reskilling by overcoming the main barriers to attracting and supporting learners.
4. **Securing industry and employer engagement**: strengthening partnerships with business and industry to ensure upskilling and reskilling provision in higher education is aligned to real skills needs.

For more information, contact the OECD Higher Education Policy Team (HigherEducation@oecd.org) or the European Commission (EAC-UNITE-C1@ec.europa.eu), and click here to join the EIPC network.

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1. Introduction

An increasing need for adults to upskill or reskill

As technology rapidly evolves and decarbonisation of economies progresses, workers across European Union (EU) and OECD countries are confronted with a need to learn and adapt. More than ever before, adults are being called on to develop their competencies throughout their careers and in many professions and areas of human endeavour higher education institutions (HEIs) have a clear role to play in facilitating this continuous development. This paper explores the mechanisms through which higher education (HE) can help respond to this demand.

Successful digital and green transitions will depend on innovation to develop and implement new solutions, spur productivity gains and generate new, high-quality jobs (OECD, 2024[1]). This means that workers not only require knowledge and skills related to digital and environmentally sustainable processes and technologies, but also the skills to foster innovation, thrive in rapidly evolving circumstances and meet changing job requirements.

Although the digital and green transitions hold the promise of raising long-term productivity and economic prosperity, they pose immediate challenges, such as labour market disruptions that will render some jobs obsolete and potentially widen inequalities between different regions, sectors and groups of more or less skilled workers (Autor, Levy and Murnane, 2003[2]; Hershbein and Kahn, 2018[3]). In the face of such risks, reskilling and upskilling initiatives can enable workers to adapt and benefit from innovation as well as facilitate the diffusion of new technologies and ways of working. The importance of upskilling and reskilling is further amplified by demographic shifts, including population aging, which require a workforce that remains active and skilled for longer.

Box 1 provides key definitions, outlines the scope of this report, and situates it within the broader context of the Education and Innovation Practice Community (EIPC) initiative and its series of analytical reports.

Box 1. Scope of the report and key definitions: EIPC strand on upskilling and reskilling in higher education

The Education and Innovation Practice Community

This is the last in a series of four analytical reports prepared as part of the **Education and Innovation Practice Community** (EIPC) initiative, an action supported by the European Union's New European Innovation Agenda, flagship 4 on "Fostering, attracting and retaining deep tech talent" (European Commission, n.d.[4]) and implemented by the OECD. The EIPC initiative seeks to bring together policymakers and practitioners to advance understanding of the competencies that can trigger and shape innovation for the digital and green transitions.

The EIPC's first two analytical reports focus on mechanisms through which HE can contribute to their development in secondary education by supporting teachers and school leaders (OECD, 2023[5]) and the development of effective curricula in schools (OECD, 2023[6]). The third report explores how traditional HE degree programmes can best develop competencies important for green and digital innovation targeted at students transitioning from secondary education (OECD, 2024[1]).

Scope

This report addresses the third key question to be addressed by the EIPC: how can governments promote the provision and uptake of high-quality, relevant, and targeted upskilling or reskilling opportunities to enable adults to develop competencies for green and digital innovation? As such, it focuses on learning opportunities that cater to adult learners within the higher education system.

The report emphasises upskilling and reskilling initiatives that aim to enhance employability and support progress towards recognised educational qualifications, with a particular focus on competencies relevant to the digital and green transitions, which are significant drivers of increased demand for learning opportunities for adults.

While the focus is on upskilling and reskilling related to the green and digital transitions, the paper presents examples and evidence related to upskilling and reskilling in higher education more broadly. Examples that do not specifically address competencies for the green and digital transitions have been included to illustrate principles and trends than can inform policy tailored to support these transitions.

Key definitions

Reskilling refers to the development of skills within a new domain of competency to enable a learner to make a career or job pivot (OECD, 2022[7]). "**Upskilling"** refers to education and training that aims to augment or refresh a learner's existing set of skills (OECD, 2022[7]).

Adult learners are broadly defined as learners who are older than the typical age of transition into HE from secondary education and/ or are returning to learning after a break in their studies (for employment or other purposes) (OECD, 2022[7]).

The **digital transition** refers to the process that enables firms to integrate new technologies into their work and beyond. It involves increasing automation, the use of artificial intelligence (AI), and the deployment of smart machines, fundamentally altering the nature of many established professions (Muench et al., 2022[8]).

The **green transition** refers to the decoupling of economic development from resource use by creating a zero-carbon, zero-waste economy (Muench et al., 2022[8]).

Deep tech innovation refers to radical and disruptive innovation processes that bring together, through inter-disciplinary co-operation, insights from the natural sciences and digital technologies to provide new solutions to global challenges including challenges posed by the digital and green transitions (Eueropean Commission, 2022[9]).

Sources: European Commission (n.d.[4]), "The New European Innovation Agenda", The New European Innovation Agenda - European Commission (europa.eu); OECD (2023[5]), "Education and innovation for the digital and green transitions: How higher education can support teachers and school leaders", *OECD Education Policy Perspectives*, No. 82, OECD Publishing, Paris, https://doi.org/10.1787/6407e9f4-en; OECD (2023[6]), "Education and innovation for the digital and green transitions: How higher education can support effective curricula in schools", OECD Education Policy Perspectives, No. 81, OECD Publishing, Paris, https://doi.org/10.1787/3dedf4cb-en; OECD (2024[1]), "Cultivating the next generation of green and digital innovators: The role of higher education", OECD Education Policy Perspectives, No. 95, OECD Publishing, Paris, https://doi.org/10.1787/bb6e432e-en; OECD (2022[7]) "Higher Education Policy Survey 2022 – Part B - Upskilling and Reskilling in Higher Education", https://survey.oecd.org/upload/surveys/369333/files/HEPS%202022%20Part%20B.pdf; Muench, S., Stoermer, E., Jensen, K., Asikainen, T., Salvi, M. and Scapolo, F. (2022[8]), Towards a green and digital future, Publications Office of the European Union, Luxembourg, 2022, JRC Publications Repository - Towards a green & digital future (europa.eu); European Commission (2022[9]), "A New European Innovation Agenda", EUR-Lex - 52022DC0332 - EN - EUR-Lex (europa.eu)

Despite progress in participation rates in adult learning across most EU countries over the past decade, significant potential demand – or need – for upskilling and reskilling remains unmet Figure 1).

A recent Cedefop report estimates that between 30% and 70% of adults living in EU countries would benefit substantially from further skills development, with an EU average of 46.3% (Cedefop, 2020[10]).[1] Furthermore, the report notes a persistent disparity in participation rates in adult learning between low-

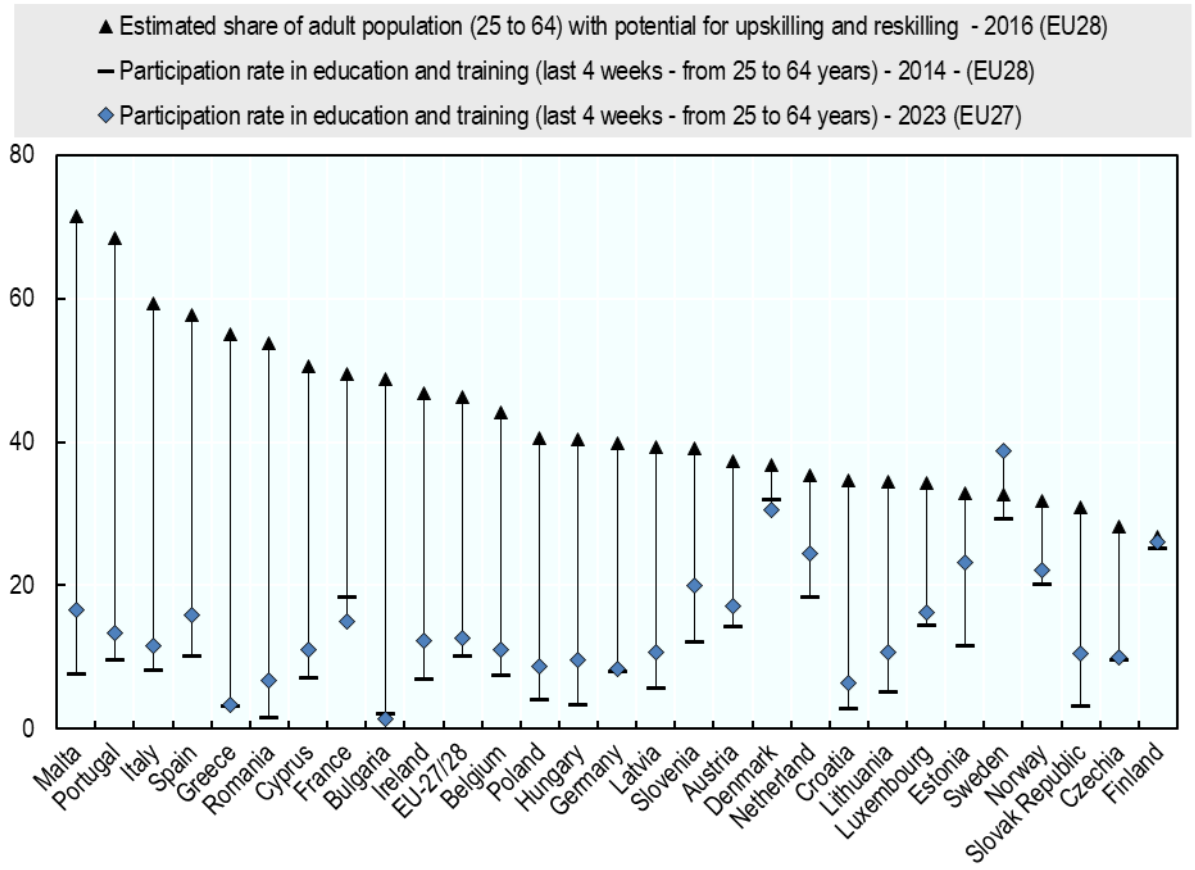
[1] These estimates are based on the sum of the shares of four groups: low-educated adults, medium-high educated adults in elementary occupations, adults with low digital skills, and adults with low cognitive skills (excluding overlaps between the groups) (Cedefop, 2020[91]). However, it is important to recognise that this estimation has limitations given the context of rapid technological change whereby everyone can benefit from continuous learning and skill development, regardless of their current skill levels.

and high-skilled adults: a particular concern given the generally greater risk of job displacement among the low-skilled (OECD, 2023[11]). Inclusive adult learning policies, with targeted upskilling and reskilling initiatives have the potential to mitigate the negative impacts of technological change and facilitate transitions from routine jobs to more complex roles (Battisti, Dustmann and Schönberg, 2023[12]).

Current challenges to increase upskilling or reskilling in higher education

Although, on the face of it, HE is well placed to respond to growing needs for advanced upskilling or reskilling among adults, a complex array of challenges make this harder to realise in practice. Adults often need to balance education with work and family commitments and come to education and training with more variable competency levels than school leavers, meaning HE providers need to create learning content and study patterns that meet these diverse needs. Across OECD countries, lack of time due to work commitments has been found to be the main barrier to participation in training across skill levels (OECD, 2023[11]). Family-related time constraints and financial barriers follow as the most significant hurdles, disproportionately affecting low-skilled individuals (OECD, 2023[11]). This further increases the need for flexible learning opportunities, as well as customised incentives and financial supports.

Figure 1. Upskilling and reskilling participation in the European Union[2]



Sources: Data on adult learning participation for ages 25-64 comes from the European Labour Force Survey (Eurostat, 2024[13]). Estimates on adults' potential for upskilling and reskilling are from Cedefop and based on 2016 data (Cedefop, 2020[10]). 2023 participation rates cover EU27, while other data pertain to EU27 plus the United Kingdom (EU28).

[2] Note by the Republic of Türkiye: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Türkiye shall preserve its position concerning the "Cyprus issue". Note by all the

Engagement of industry and businesses in upskilling and reskilling programmes can increase the relevance of provision but presents its own set of challenges. Small and medium-sized enterprises (SMEs), in particular, face unique challenges in engaging with HE providers, as they may perceive a stronger risk of disruption to their business operations.

A more general challenge for meeting the needs for advanced upskilling and reskilling related to the digital and green transitions is the limited focus on adult learners in system-level and institutional strategies in HE. Despite a large majority of OECD and EU jurisdictions recognising the importance of HEIs as an actor in lifelong learning, HEIs traditionally focus on initial post-secondary education, while much of the current upskilling or reskilling offer is developed outside HEIs, through industry-led and commercial training programmes. This lack of focus is compounded by governments' lack of comprehensive data and a clear overview of the extent of adult learning activity in general and in HE and the limited evidence base on the effectiveness of different programme types in meeting labour market demands. These factors likely contribute to unclear guidance for HEIs and a lack of awareness among adults about the upskilling or reskilling learning opportunities HEIs do offer.

Section 2 presents a typology that provides a broad categorisation of the main types of upskilling and reskilling programmes offered at HEIs in EU and OECD jurisdictions. While not exhaustive, this typology can serve as a starting point for understanding the current landscape of HE-based upskilling and reskilling provision and identifying potential areas for improvement and research.

Four key areas of intervention

The last decade has seen a growing emphasis in many EU and OECD countries on increasing the role of higher education in the upskilling and reskilling of adult learners. The green and digital transitions are a major factor driving this increased demand for upskilling and reskilling and present a significant opportunity for the higher education system to catalyse new initiatives in this area.

There is a growing recognition that making this happen depends not only on individual HEIs, many of which have long-standing upskilling and reskilling initiatives, but also on system-wide strategies that incentivise both adult learners and HEIs to engage in upskilling and reskilling. Concurrently, an increasing body of experience shows that collaboration between HEIs, industry and policymakers can help to develop upskilling and reskilling offerings that align with labour force demands and have strong potential to support the digital and green transitions.

This analytical report identifies four key areas of intervention through which policymakers and practitioners can increase the capacity of HE systems to support adult learners to acquire new competencies through upskilling and reskilling initiatives (Figure 2):

1. **Setting system-wide strategies for upskilling and reskilling:** developing well-thought-through strategies that provide clear direction and help to create an enabling environment for HEIs to deliver upskilling and reskilling opportunities that align with labour market demands.
2. **Supporting HE-based upskilling and reskilling provision:** policies that support HEIs in adapting their offerings to meet the changing needs of lifelong learners.
3. **Attracting and supporting learners:** actions to address the main barriers that prevent adults from engaging in reskilling and upskilling.
4. **Securing industry and employer engagement:** adopting approaches that promote and facilitate effective collaboration between HEIs and industry partners in the provision of upskilling and reskilling.

European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

While the green and digital transitions are a key driver of the need for upskilling and reskilling, many of the examples and evidence examined in this paper relate to upskilling and reskilling in HE more broadly. The provision of upskilling and reskilling in higher education is an evolving field and the general principles and trends identified can still provide valuable insights to guide policies aimed specifically at supporting upskilling and reskilling for the green and digital transitions.

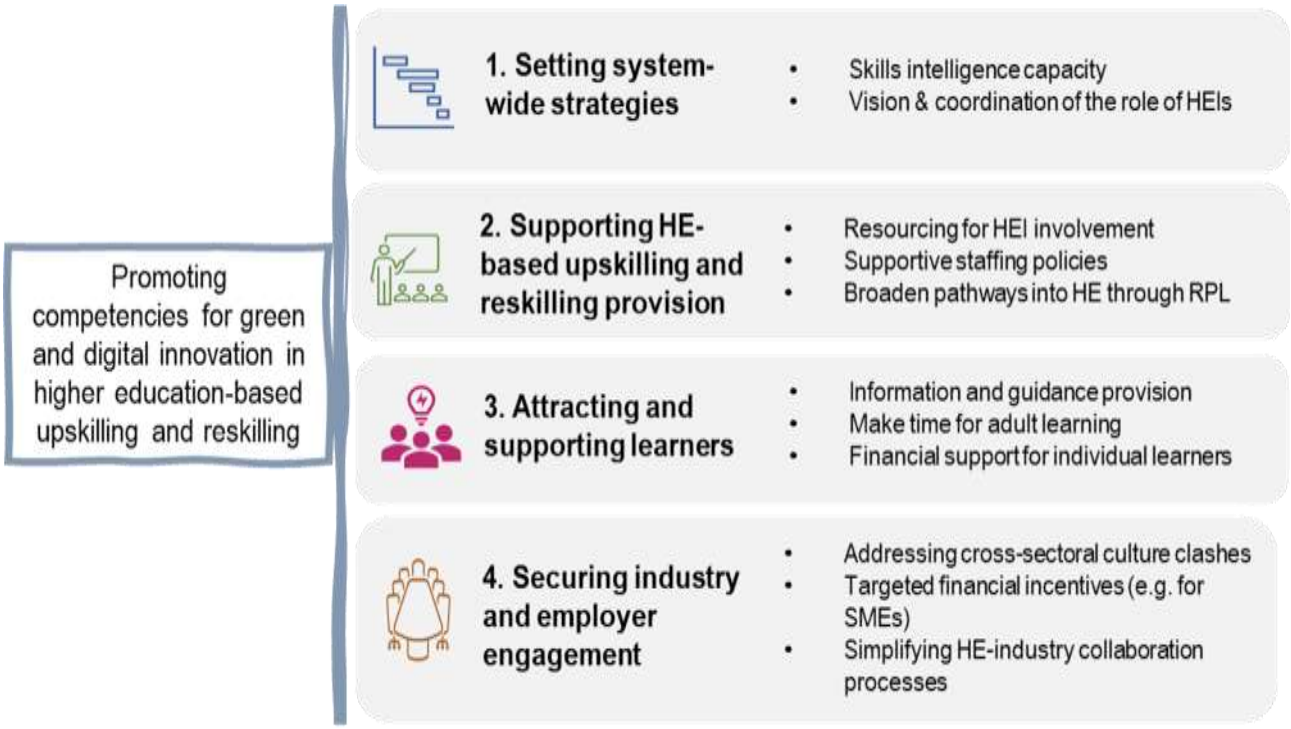
Section 2 will first examine the current realities surrounding the role of HE in reskilling and upskilling, offering a typology of the HE-based upskilling and reskilling observed in OECD countries. Sections 3 to 6 then, in turn, analyse the four areas of intervention depicted in Figure 2, which were identified through desk research and insights from EIPC events and case studies. The analysis summarises key evidence on current patterns and trends and options for policy and practice, incorporating reflections and case studies from EIPC members, along with insights from the strand 3 EIPC International Knowledge Exchange event, which brought together over 180 policymakers and practitioners (refer to Annex A for the event agenda).

Additionally, this report draws on data collected in 2022 from Part B of the OECD Higher Education Policy Survey (HEPS) 2022, a periodic fixed-response survey instrument used by the OECD to collect comparative data on HE policies.[3] The survey aimed to gather comparative information about policies that support the provision of upskilling and reskilling opportunities in HE systems, covering four main areas of policy: 1) public commitment, strategy, and policy priorities; 2) opportunities and supports for learners; 3) policies to stimulate HEI provision; and 4) policies to stimulate employer involvement (OECD, 2022[7]). With responses from 29 jurisdictions, the HEPS 2022 provides valuable information on the policy landscape in a field still in its infancy.[4] Tables and figures related to HEPS 2022 can be found in Annexes B and C.

[3] The survey questions can be downloaded online using this link (OECD, 2022[7]).

[4] The 29 responding jurisdictions are Australia, Austria, Canada, Croatia, Denmark, England, Finland, the Flemish Community of Belgium, France, the French Community of Belgium, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, the Netherlands, New Zealand, Norway, Peru, Poland, Portugal, Romania, Scotland, the Slovak Republic, Slovenia, Sweden and Switzerland.

Figure 2. Mechanisms for enhancing upskilling or reskilling in higher education



Notes: Authors' own elaboration

2. The role of higher education in reskilling and upskilling: current realities

Although HEIs have the capacity to play a substantial role in upskilling and reskilling for adult learners, such ambitions are not yet fully reflected in current patterns of provision and enrolment. HE-based upskilling and reskilling opportunities exist in most OECD HE systems, and there are signs that more HEIs are developing strategies in this area, notably as part of recent efforts to popularise micro-credentials[5]. However, available evidence suggests that a large part, perhaps even the majority, of advanced upskilling and reskilling provision is delivered outside of the HE system (OECD, 2023[14]). The reasons for this are complex and vary from one jurisdiction and industry to another. One common reason across many jurisdictions is that upskilling and reskilling has historically been considered as adult learning or vocational education and training (VET), and its provision – except for certain forms of continuing training for regulated professions, such as lawyers – has not been considered part of the mission of HEIs (OECD, 2023[15]). In some cases, the limited role played by HEIs might be a consequence of upskilling and reskilling demand being met by non-HE actors, such as industry associations, trade unions, or private education and training providers.

[5] Micro-credentials are a form of credential that individuals can earn upon the completion of organised learning activities that are "smaller, more targeted and more flexible" than traditional education and training programmes. They are often offered fully or partly online but are also available in in-person settings. A broad range of providers offer micro-credentials, including higher education institutions, vocational education and training institutions, private companies, industry or professional associations, and non-profit organisations. Micro-credentials are typically seen as a tool to complement conventional forms of education and training and can result in standalone qualifications or be embedded in broader learning pathways. (Kato, Galán-Muros and Weko, 2020[39]; OECD, 2021[91]; OECD, 2023[30])

Data on HE-based upskilling and reskilling is scarce. There appears to be no recent international typology or even a systematic overview of HEI-based upskilling and reskilling provision, at least at an EU level or across OECD countries. Within individual countries, the closest applicable resources are overviews of specific types of provision aimed at guiding prospective learners through information portals. There have also been attempts to collect comparable information on upskilling and reskilling provision in specific fields, such as digital skills initiatives or training offers for energy efficiency in the EU, but these do not focus on HE providers (Mack, Guerriero and Kubicki, 2021[16]; Lang and Triantoro, 2022[17]). International statistics systems do not collect information specifically on programme provision and enrolment in upskilling and reskilling in HE (or at all). The HEPS 2022 data collected information on the types of existing upskilling or reskilling opportunities for adult learners at advanced skill levels and forms of short non-degree programme types offered by different jurisdictions (see Annex Table B.6) but did not attempt to collect information on the scale of provision or enrolment. The results of the HEPS 2022 suggest that while many countries offer a variety of upskilling and reskilling opportunities, information on the degree to which this education is HE-based, as well as the extent to which this provision is labour-market oriented, is lacking, highlighting a lack of comprehensive data collection efforts which limit policymakers' insights into understanding the upskilling and reskilling landscape in HE.

A typology of HE-based upskilling or reskilling in the EU and OECD

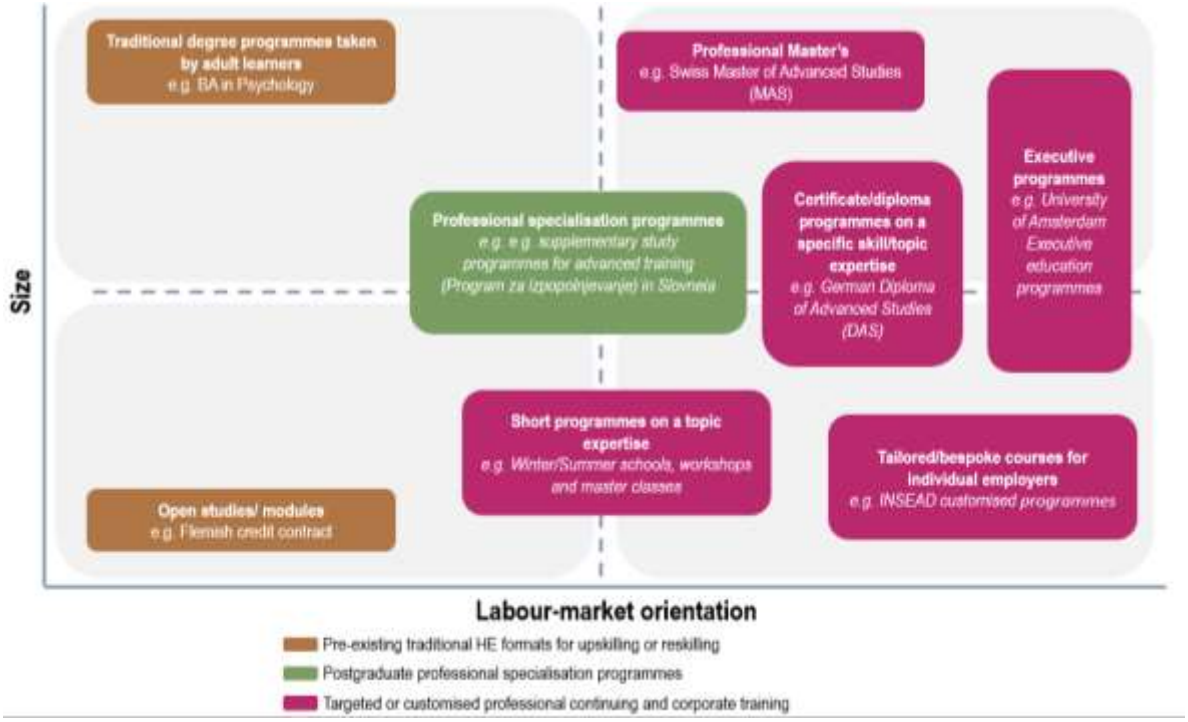
The typology presented below maps the main forms of HEI training available to adult learners across EU and OECD jurisdictions. The typology is not exhaustive and not all programme types are equally prevalent in each jurisdiction.

The typology consists of three main groups: **1) pre-existing traditional HE formats for upskilling or reskilling; 2) postgraduate professional specialisation programmes and certificates; and 3) targeted or customised professional continuing and corporate training.** These groups contain different kinds of offerings, which are mapped in Figure 3 along two dimensions: programme size and the extent to which they are focused on labour market insertion. The figure also includes country examples for each sub-group. While this mapping is inevitably subjective and the positioning of individual types of provision will depend on context – for example, the labour market relevance of programmes of a similar type may vary between subject fields and some types of programmes may be more flexible depending on the country or HEI – it can offer a helpful overview of the varied HE landscape for adult learners.

Massive open online courses (MOOCs) and micro-credentials are not included as separate programme types in this typology. Firstly, from the perspective of the typology, MOOCs are a form of delivery covering multiple programme types at different HEIs and jurisdictions. Secondly, given the definition in *the EU Council Recommendation on a European approach to micro-credentials for lifelong learning and employability*, many programme types in the typology are technically a micro-credential, even if they were not conceived and offered as part of micro-credential initiatives (Council of the European Union, 2022[18]).

Figure 3. Matrix of higher education-based upskilling or reskilling provision types

Notes: Authors' own elaboration



Pre-existing traditional HE-provision for upskilling or reskilling

Listing provision types from the least to the most labour-market focused, on one end of the spectrum there are **traditional degree programmes** taken by adult learners. These programmes are designed to equip learners with a wide range of knowledge and skills that can be invaluable for professional life, but typically have a broader educational objective than training individuals for specific tasks or occupational roles. They might be offered on a part-time or distance learning basis. While a significant proportion of adult learners appear to pursue traditional degree programmes for personal interest, there are others who use them for reorienting their careers or to upskill or gain additional expertise and recognition in the field in which they work. Adult participation in traditional degree programmes appears to be more common in OECD jurisdictions where the costs of pursuing degree courses are kept low for learners (Cirlan and Loukkola, 2020[19]; OECD, 2023[15]). However, there are concerns that the wide availability of degree programmes as a form of adult learning might foster an over-emphasis on traditional degree certificates, thereby potentially lowering businesses' recognition of other provision types (OECD, 2023[15]).

Another way of using pre-existing HE-provision for upskilling or reskilling is **open studies**. This provision type can go under a variety of names in different OECD jurisdictions, but the concept is that adult learners can access individual modules or other shorter units of learning from HEIs, for which they might or might not receive a certificate or learning credits. These modules are substantially shorter than taking full degree programmes, making them more attractive for adults with work and family responsibilities. Open studies are well-established in several OECD jurisdictions. Many programmes offered as micro-credentials by HEIs are also in effect unbundled modules from existing degree programmes with little further modification. While this is a relatively well-established channel for adult learners to access specific parts of degrees which are relevant to them, in some cases there are concerns about the extent to which they sufficiently respond to the needs of adult learners wanting to improve their employability (OECD, 2023[14]).

Postgraduate professional specialisation programmes and certificates

Large parts of HE-based upskilling and reskilling fall under what can be broadly categorised as **professional specialisation programmes** (PSPs). These exist across EU and OECD Member States, although their exact format varies from one jurisdiction to another, and some jurisdictions have multiple types. They most often function as a form of continuous learning for workers in a profession, typically a regulated or highly structured profession, such as law or teaching. As such, they are aimed at learners with high levels of prior educational attainment, typically at least a first-cycle degree. PSPs can also function as qualifying training to join a profession. PSPs result in a certificate or diploma which might or might not be part of the National Qualification Framework (NQF) but are well recognised, at least within the relevant industry or profession. There is substantial heterogeneity in their formats and size, with some lasting as little as a day while others last up to two academic years. PSPs are typically delivered either in block or on a part-time or evening course basis. Most professional specialisation programmes could technically fall under the category of micro-credentials although they typically predate this concept.

Targeted or customised professional continuing and corporate training

Targeted professional training refers to professionally oriented non-degree programmes aimed at companies and individuals. While sharing similarities with professional specialisation programmes, targeted professional training offers also cater for, and in many jurisdictions even focus on, non-regulated professions, such as business-related competencies or topics. They are also offered on a more explicitly commercial basis, often by specific continuous learning departments or legally separate commercial subsidiaries of HEIs. Targeted professional training covers a variety of offer formats, ranging from larger **professional master's programmes**, or certain **executive** and **'Master of Business Administration (MBA)** type of programmes to **short courses aimed to develop a specific professional skill or topic expertise**. These programmes are mostly delivered on a part-time or evening course basis, often on a blended and in some cases even fully distance format. Fully distance programmes might also be offered as MOOCs on commercial online learning platforms. In addition, some HEIs also offer to develop and deliver **bespoke training programmes for individual employers**; however, this can be very labour intensive on the HEI's part, meaning that this type of provision is only feasible for large employers.

3. Setting system-wide strategies for upskilling and reskilling in the higher education sector

The challenge: insights from evidence and experience

Many EU and OECD jurisdictions recognise the role that HEIs play in providing upskilling and reskilling opportunities. Data from the HEPS 2022 reveals that 26 out of 29 responding OECD jurisdictions have published system-level strategies on the use of the higher education system for upskilling or reskilling, while many jurisdictions have set a range of current and near-term objectives to promote the development of HE-based upskilling or reskilling opportunities (see Annex Figure C.1 and Table B.1. However, despite these efforts, many countries still face several challenges.

First, many countries still lack a unified approach on how HE should contribute to overall upskilling and reskilling efforts. Traditional HEI missions often do not include specific reference to upskilling or reskilling, and there is frequently an absence of clear system-level directives on the roles HEIs should play in policy and legal frameworks.

Second, this lack of direction is often compounded by a lack of information on skills gaps and a compartmentalisation of activities to promote upskilling and reskilling in different government departments and agencies.

Understanding current and possible future skill needs is key for developing effective policies for upskilling and reskilling, including in HE. Public authorities use various methods to assess skill needs, including expert workshops, skills surveys, forecasting models and job vacancy analyses (ILO/ OECD, 2018[20]). Recent advances in text analysis and machine learning have provided additional insights into skill gaps, though their effectiveness is limited by data quality and collection challenges (OECD, 2024[1]).

Furthermore, policymakers often use crude educational attainment measures to gauge adults' skill levels, which prevents accurately measuring skills gaps. Public authorities also consult multi-stakeholder expert advisory committees, but achieving consensus among experts remains challenging (OECD, 2020[21]).

Moreover, identifying how skills intelligence should be translated into effective upskilling and reskilling offerings poses another set of challenges. While calibrating traditional HE degree programmes designed for students transitioning from secondary school to deliver relevant knowledge and skills is far from straightforward (OECD, 2024[1]), the challenges become even more complex for upskilling and reskilling initiatives. Adult learners represent a heterogeneous group, generally differing markedly from those entering HE directly after secondary school (OECD, 2023[11]). The task of designing educational content that meets the diverse pedagogical needs of adult learners, while also accommodating their time and geographical constraints is complex and lacks a robust evidence base to determine effective practices.

Additionally, development of system strategies is also hindered by a lack of comprehensive oversight of upskilling and reskilling offerings. Governments and HE associations often do not have a full picture of available upskilling and reskilling programmes. Many programmes are provided by alternative education providers and delivered through online platforms and corporate training programmes, which are not usually recorded in official data collections. Also, there is a gap in government tracking of adult participation in these programmes and subsequent labour market outcomes, which impedes policymakers' ability to develop effective steering and incentive mechanisms to boost upskilling and reskilling in HE and more generally. Data from the HEPS 2022 highlights these challenges, revealing that only just over half of the surveyed jurisdictions collect data on participation in non-degree upskilling or reskilling programmes. Less than half monitor the credentials awarded, and only 9 out of 26 track the labour market outcomes of participants (see Annex Table B.2). This lack of comprehensive and reliable data means that the basis for evidence-based policy decisions and strategy-making is often missing.

Finally, evidence from the HEPS 2022 suggests there is a risk of fragmentation in upskilling or reskilling initiatives and a compartmentalisation of efforts across different government departments, such as labour and education, which may impede the development of unified national strategies and policies (see Annex Table B.3). Although various ministries have interests in upskilling or reskilling, a lack of co-ordination may lead to isolated efforts, which, in turn, result in a lack of cohesive policies thereby leaving HEIs without clear guidance and/or capacity to ensure the provision of such offerings.

EIPC Reflections – setting strategic direction for HEIs

At the Strand 3 EIPC International Knowledge Exchange event on 9 April 2024, the spotlight was on HEIs and their role in delivering upskilling or reskilling to support digital and green innovation. Central themes were the need for a strategic vision for upskilling and reskilling within the HE sector and the importance of co-operation between government and HEIs.

> *"Since 2004, we've had a flexible HE system as a standard. We recently introduced a strategic vision development process, with a particular emphasis on lifelong learning (…) A notable achievement was reaching an agreement between the government and the 18 HEIs on the provision of micro-credentials, demonstrating our ability to collaborate effectively without the need for legal enforcement."*
>
> ***Liesbeth Hens,*** *Policy Advisor, Flemish Ministry of Education and Training, Belgium*

The discussions emphasised the importance of sectoral skills intelligence tools for identifying and forecasting skill shortages, particularly in the context of the green and digital transition. Such tools were seen as key for informing and tailoring upskilling and reskilling initiatives to meet evolving industry needs.

> *"Our analysis, carried out under the European Blueprint for Sectoral Cooperation on Skills and supported by various skills surveys, has highlighted a pressing need for digital, green and soft skills within the tourism industry. These findings underscore the urgency of upskilling and reskilling initiatives to keep pace with the evolving demands of the sector."*
>
> ***Rino Vitelli****, Head of EU projects and partnerships, Federturismo Confindustria, Italy*

Beyond skills intelligence tools, collaboration emerged as a pivotal theme, with many speakers stressing the value of regional co-operation and the essential role of HEIs in building networks with industry, government and alternative education providers.

> *"A digital [information] platform, while essential, is not sufficient on its own. We actively engage stakeholders through diverse activities to bridge the skills gap, organising events that foster collaboration between the IT sector and education, and connecting with other platforms to offer comprehensive information on news, events, opportunities, and training across Luxembourg."*
>
> ***Marina Andrieu****, Founder - WIDE ANDCO, Coordinator - Digital Skills and Jobs Coalition, Luxembourg*

Furthermore, the event underscored the specific needs of adult learners and the distinct role of HEIs as centres of innovation and large communities of research and teaching that are uniquely well placed to support advanced upskilling and reskilling.

> *"I believe universities are huge communities and we must start from the campuses as a resource to permit employees and students to acquire the skills they need."*
>
> ***Tamer Atabarut****, Faculty Member at Boğaziçi University, Türkiye and Member of the Steering Committee of eucen (European University Continuing Education Association), Spain*

Notes: *This information is derived from the presentations and discussions at the international online knowledge exchange 'Promoting competencies for digital and green innovation through upskilling or reskilling in HE' held on 9 April 2024. See Annex A for the event agenda.*

Options for policy and practice

Developing skills intelligence and system-wide collaboration

To develop well-targeted upskilling and reskilling, HEIs – like other provider types - require robust skills intelligence and forecasting (Cedefop, 2023[22]; OECD, 2024[1]). Equally, effective system-wide strategies for upskilling and reskilling, which include a clearly defined role for HE, depend on collaboration between different public authorities, employers and the different actors in the education and training sector, including HEIs (ILO/ OECD, 2018[20]; OECD, 2024[1]) Governments can play a central role in guiding upskilling and reskilling initiatives through supporting research and skills intelligence initiatives, using strategic funding to promote collaboration between different actors, and disseminating information on skill needs, best practices and opportunities. Finland and Estonia provide an interesting example in this respect (see Box 2).

Box 2. Finland and Estonia's strategic approaches to upskilling and reskilling for the green and digital transitions

Finland's holistic strategy for upskilling and reskilling in higher education

Finland serves as an example of a country that is proactively seeking to align its HE-provision with future job market demands through a holistic, evidence-based strategy. This includes a comprehensive skill forecasting strategy discussed in a previous EIPC case study (OECD, 2024[1]). Moreover, the country is taking a co-ordinated approach to meet the country's upskilling and reskilling needs through targeted funding and steered collaboration between HEIs.

The **Service Centre for Continuous Learning** (*Jatkuvan oppimisen ja työllisyyden palvelukeskus - Jotpa*) is an independent authority funded jointly by the Finnish Ministry of Education and Culture and the Ministry of Labour and Economy, which strategically funds short-term training programmes based on its analysis and interpretation of fore competency needs (Jotpa, 2024[23]). It promotes effective models for continuous learning, conducts research to optimise adult education investments and makes information on future skill needs and learning opportunities accessible online. It also offers a framework to identify skill gaps and integrate continuous learning into HEIs' core mission (Jotpa, 2024[23]).

All 38 public Finnish HEIs are collaborating on **Digivisio 2030**, a key element in the country's strategy to widen access to advanced learning. This initiative aims to prepare the population for the digital and green transitions by creating a national digital service platform that brings together digital and open education services from all HEIs in a single access point (Nordlund and Piiroinen, 2022[24]; Digivisio, 2024[25]). Digivisio also seeks to leverage AI to provide individualised learner guidance and facilitate sharing of learner data as key tools to improve the quality and relevance of upskilling and reskilling and facilitate learners' access to the job market (Nordlund and Piiroinen, 2022[24]; Digivisio, 2024[25]).

Estonia's targeted approach to greening its economy through the green skills programme

Estonia provides an example of a country taking a proactive approach to developing the skills needed for the green transition. Through the Recovery and Resilience Facility, the country has launched a EUR 15 million investment to create flexible learning opportunities that meet the needs of the labour market and support companies in implementing the green transition (European Commission, n.d.[26]).

The main activities include the development of curricula by sectoral working groups (consortia), provision of training and micro-credentials to support companies' green transition, updating occupational qualification standards to integrate skills for the green transition, and communication and information activities. Nine consortia, including HEIs, vocational education institutions and professional associations, are working to define the most important skills needed in at least five sectors. The

consortia are reviewing existing curricula, creating new modules and subjects when necessary, and formulating learning outcomes to teach these skills.

Expected results include the definition of skills with the greatest impact on the green transition, creation of new subjects, modules and training curricula, training of at least 330 teaching staff, and participation of at least 2 830 employees (with a new goal of about 6 000) in trainings.

Sources: Adapted from EIPC case studies received from JOTPA, presentations made by Hanna Nordlund and Sirkku Linna during the EIPC workshop with Finland in February 2024 and a presentation made by Ena Drenkhan during the EIPC international peer learning workshop organised in May 2024; OECD (2024[1]), Cultivating the next generation of green and digital innovators: The role of higher education", https://www.oecd.org/publications/cultivating-the-next-generation-of-green-and-digital-innovators-bb6e432e-en.htm; Nordlund H. and Piiroinen H. (2022[24]), "Digivisio 2030: Finland as a model country for flexible learning" https://doi.org/10.29007/9687; Digivisio (2024[25]), "Finland lives on diverse expertise", https://digivisio2030.fi/en/frontpage/; Jotpa (2024[23]), "Jatkuvan oppimisen ja työllisyyden palvelukeskuksena", https://www.jotpa.fi/; European Commission (n.d.[26]), "Green skills to support the green transition of enterprises", Green skills to support the green transition of enterprises - European Commission (europa.eu)

Developing a strategic vision for the specific role of HE in upskilling and reskilling

Public authorities can support the development of system-wide strategies for upskilling and reskilling in HE by establishing clear goals, common definitions and defining the missions of public and publicly funded HEIs. This might involve modernising national qualification frameworks to recognise non-formal qualifications, developing occupational standards that outline the tasks, activities, and competencies required for various occupations, or defining learning outcomes necessary for adult learners to achieve relevant qualifications (OECD, 2023[11]). Some systems are taking steps in this direction by adopting a centralised, systemic approach to upskilling and reskilling in HE, outlining actions across thematic areas and seeking to address challenges across ministerial portfolios in lifelong learning holistically (see Box 3).

Box 3. Strategic initiatives in the Flemish Community of Belgium, the Slovak Republic and Poland

Strategic collaboration for mainstreaming upskilling or reskilling in Flemish higher education

In the Flemish Community of Belgium, the approach to upskilling or reskilling in HE is characterised by a strategic and collaborative vision. Since 2004, the Community has promoted a flexible system that removes the formal distinction between full-time and part-time students and enables individualised study programmes. At the heart of its strategy is the Higher Education Advancement Fund (*Voorsprongfonds*). With a budget of EUR 60 million for 2021-23, the fund has supported 255 projects aimed at fostering innovation in HEIs, the development of lifelong learning policies, enhancing accessibility, collaboration with the labour market and facilitating the establishment of micro-credentials. The project has also developed a strategic vision for upskilling or reskilling through collaboration between the Community's 18 HEIs, geared towards creating a future-proof and flexible training portfolio with a significant emphasis on digital education. The initial outcomes have yielded promising results, with the development of shared visions on lifelong learning and micro-credential provision (Vlaamse Onderwijsraad, 2023[27]). Moving forward, the strategy aims to continue promoting a collaborative approach over a top-down method by improving co-creation processes with HEIs and other providers.

Addressing labour market challenges through lifelong learning in the Slovak Republic

The Slovak Republic faces significant challenges in its labour market, with an adult participation rate in lifelong learning of just 4.5%, well below the OECD average of 11%, and a high risk of job automation (Eurydice, 2022[28]). To address these challenges, the Slovak Republic's Strategy for Lifelong Learning and Counselling for 2021-2030 seeks to improve adult working skills, boost engagement in continuous education, and modernise the education system to align it more closely with labour market needs. The

strategy outlines actions across four thematic areas: enhancing qualifications, promoting basic skills and civic education, emphasising the supra-ministerial nature of lifelong learning, and motivating citizens to engage in continuous education. It also includes a system for tracking school graduates and supports the management of sector councils to ensure education-industry links (Eurydice, 2022[28]). The strategy includes several key components to help HEIs play a central role within this initiative: the introduction of individual educational accounts, the development of training centres for those with lower skill levels, the further development of micro-certificates and qualifications, and the creation of an institute for master examinations.

Poland's systematic approach to micro-credentials in ICT

Poland has adopted a systematic approach to micro-credentials, focusing initially on ICT skills (IBE, n.d.[29]). The country has launched a EUR 5.7 million pilot project co-financed by the European Social Development Funds, involving 32 dedicated professionals to pilot micro-credentials and assess their integration into Polish legislation and state policy and practice. The project is structured into four teams: one developing standards and solutions for designing, issuing and ensuring the reliability QA of micro-credentials, another implementing pilots with companies and universities, a third focusing on technical aspects, development of IT tools and collaborations with global stakeholders, and a fourth promoting micro-credentials. The project maintains a website (microcredentials.pl) and profiles on social media including LinkedIn (https://www.linkedin.com/company/microcredentials-polska/), both in Polish and English. This initiative is supported by a micro-credential advisory group comprising various ministries and key stakeholders from the education and labour sectors. The project aims to build trust and ensure quality assurance in micro-credentials, with the potential to expand into green, digital, and social skills in the future.

Sources: Adapted from EIPC case studies received from the Slovak Republic, the presentation given by Liesbeth Hens during the EIPC international knowledge exchange workshop in April 2024 and the presentation given by Michał Nowakowski during the EIPC international peer learning workshop in May 2024; Vlaamse Onderwijsraad (Flemish Education Council, -VLOR) (2023[27]), Microcredentials in Vlaanderen, Microcredentials in Vlaanderen (vluhr.be); Eurydice (2022[28]) "Slovakia: Strategy for Lifelong Learning and Counselling for the years 2021-2030", Slovakia: Strategy for Lifelong Learning and Counselling for the years 2021-2030 (europa.eu); Educational Research Institute (n.d.[29]), "Microcredentials - piloting a new solution to support lifelong learning", https://www.ibe.edu.pl/en/national-projects/microcredentials

4. Supporting the provision of upskilling or reskilling in higher education

The challenge: insights from evidence and experience

HEIs offer a diverse range of upskilling or reskilling opportunities. According to the HEPS 2022, while only 6 jurisdictions legally mandate some or all HEIs to provide upskilling or reskilling opportunities (see Annex Figure C.2), 19 out of 29 EU and OECD jurisdictions offer at least three types of these opportunities at advanced skills level (see Annex Table B.6). The most prevalent form is short non-degree programmes, available in 21 jurisdictions, followed by specific entry pathways for ISCED 6 programmes in 19 jurisdictions, and ISCED 5 and 7 pathways in 16 jurisdictions (see Annex Table B.6). Within these short non-degree programmes, there is a diversity of offerings (see Annex Table B.6), with the most popular being ad-hoc or tailored training programmes and unbundled modules from existing degree courses.

The appeal of such short, non-degree courses among adult learners, for whom time is often the main barrier (OECD, 2023[11]), likely stems from their flexible nature. However, the extent of HEIs' involvement in offering these opportunities and their effectiveness in meeting adult learners' needs and labour market demands remain uncertain. The limited existing evidence available suggests that the necessary conditions for adequate and sufficient provision are not consistently met. A lack of strategic direction, data collection, and a detailed overview of the upskilling or reskilling landscape (see Section 3), along with the more

practical concerns discussed below, suggest that HE-based provision may often be insufficient or inadequate to meet demand.

First, HEPS 2022 data indicate that approximately 60% of the surveyed jurisdictions provide financial resources to encourage HEIs to provide upskilling or reskilling. Within this group, this is mostly achieved by incorporating the number of students enrolled in these programmes into the funding formulas used to allocate resources to HEIs while a few jurisdictions offer a lump sum to cover associated running costs, which may or may not be formula-based. However, 40% of the surveyed jurisdictions do not account for these programmes in public funding models, expecting HEIs to fund them from non-public sources (see Annex Figure C.3). This suggests a potential lack of dedicated long-term resources and, therefore, a lack of incentives to engage in developing flexible courses.

Secondly, beyond such financial incentives, previous OECD work suggests that career incentives for academic staff to engage with upskilling or reskilling learning formats may be insufficient (OECD, 2023[11]). Additionally, inexperience with designing and delivering courses that accommodate adult learners' needs for flexibility and different content may further discourage involvement from existing academics. While evidence is limited on what types of incentive structures work best, potential avenues to explore include recognition in performance reviews and support for developing skills to create learning opportunities tailored to adult learners (OECD, 2023[11]).

Furthermore, ensuring the quality assurance (QA) of adult learning, presents another significant challenge to enhancing HE-based upskilling or reskilling opportunities (OECD, 2023[11]). QA approaches include regulatory methods, which set minimum standards for operation or public funding eligibility, often with quality certificates as rewards; more consultative approaches, promoting quality through guidelines and best practice examples, encouraging self-evaluation; and "organic" approaches, allowing providers to set their own standards (OECD, 2023[11]). This latter approach is relatively widespread, with 9 of the 29 jurisdictions responding to the HEPS 2022 permitting HEIs to self-accredit their programmes, only 5 jurisdictions requiring external programme accreditation and the situation depending on the type of HE provider or programme in 15 jurisdictions (see Annex Figure C.4). This relatively high proportion of jurisdictions indicating that QA processes depend on the type of HE provider or programme likely reflects the variability and overall lack of clarity in QA practices for HE-based upskilling and reskilling offerings (OECD, 2023[11]).

Finally, inconsistencies in QA can lead to uncertainty among providers and potentially call for greater standardisation of processes to improve the coherence and quality of HE-based upskilling or reskilling programmes. However more evidence is needed to effectively implement such standardisation as countries must balance the need for clarity and consistency with maintaining flexibility to avoid stifling innovation through over-regulation (OECD, 2023[11]).

EIPC Reflections - supporting the provision of upskilling or reskilling in higher education

At the Strand 3 EIPC International Knowledge Exchange event in April 2024, speakers and participants emphasised the need for a cultural shift within traditional HEIs to support evolving educational needs and increase the supply of well-targeted upskilling and reskilling offerings.

Several contributors stressed the importance of specific funding models for lifelong learning, with examples of successful upskilling and reskilling initiatives having used government funding to create self-sustaining programmes through university-industry partnerships.

> *"Adult learners have different needs than traditional students, requiring tailored support from HEIs. However, the lack of dedicated funding models for post-initial education remains a significant barrier to providing this essential support."*
>
> ***Liesbeth Hens,*** *Policy Advisor, Flemish Ministry of Education and Training, Belgium*

> *"Universities should remember the natural fit and huge potential audience for advanced, through-life education in a rapidly changing world. The UK's pump-priming model, combining initial public funding with industry support, offers a promising approach to incentivise provision of HE-based upskilling and reskilling*."
>
> ***Rachid Hourizi****, Director, Institute of Coding, United Kingdom*

Participants stressed the importance of minimising administrative hurdles to allow HEIs to adapt quickly to workforce changes. Potential solutions include streamlined processes to simplify the recognition of existing competencies and prior learning and, in a European context, seeking to develop a more harmonised approach to upskilling and reskilling across countries.

> *"Addressing the diversity in Europe's educational systems and bureaucratic challenges is key. Simplifying processes and working towards a unified approach can help in developing effective cross-border upskilling or reskilling programmes."*
>
> ***Katrin Männik,*** *Head of Interdisciplinary Environment Cluster KEKO, Visiting Research Fellow, Tallinn University, Estonia and Secretary General of eucen (European University Continuing Education Association), Spain*

Finally, participants emphasised the need to invest in educator training to prepare staff to meet the diverse needs of adult learners. Such training and professional development opportunities could include research and collaboration between HEIs and industry.

> *"Engaging university staff in upskilling or reskilling course delivery creates a win-win: it inspires the educators, fuels company research, and enriches education through valuable peer-to-peer learning."*
>
> ***Christina Paulus****, Head of the Department of Lifelong Learning BOKU - University of Natural Resources and Life Sciences, Austria and Member of the Steering Committee of eucen (European University Continuing Education Association), Spain*

Notes: *This information is derived from the presentations and discussions at the international online knowledge exchange 'Promoting competencies for digital and green innovation through upskilling or reskilling in HE' held on 9 April 2024. See Annex A for the event agenda.*

Options for policy and practice

Adapting financial incentives to encourage flexible learning opportunities that support upskilling and reskilling

Governments can encourage HEIs to expand their upskilling and reskilling programmes by prioritising these areas in funding models. Although approximately 60% of responding jurisdictions already include some allowance for these enrolments in their core funding allocations to HEIs (see Annex Figure C.3), the weight and magnitude of this support may need to be increased. In the remaining 40% of systems, particularly those where HE heavily relies on government funding, there is a risk that upskilling or reskilling formats are not incentivised sufficiently.

Drawing on existing evidence on the benefits of flexible study for attracting adult learners, governments can support the provision of upskilling and reskilling opportunities by incentivising HEIs to develop courses that support flexibility, such as micro-credentials and modular education studies, among other short study programmes. These formats offer quick and accessible ways for learners to acquire specific skills and allow individuals to learn at their own pace, creating personalised learning pathways (OECD, 2023[30]).

Many responding jurisdictions report already having a developed range of flexible options (see Annex Table B.6). Specifically, 25 out of 29 surveyed jurisdictions provide options for learners to retain credits gained and have these recognised by other HE providers if they disengage but later re-enrol (see Annex Table B.6). Moreover, 20 of the 29 surveyed jurisdictions have distinct "continuing education" centres or functions, which could potentially play an interesting role in attracting, mobilising, and addressing the needs of adult learners in labour-market and lifelong learning pursuits through otherwise formal post-secondary education channels (see Annex Table B.6). Learning from the experiences of these centres could be beneficial, as they potentially offer a way to take advantage of HEIs' established framework and standing, while also having more flexibility in hiring practices compared to traditional academic departments. Finally, 16 jurisdictions offer options for learners to enrol on a "module-by-module" basis, allowing them to build up to a full qualification at their own pace (see Annex Table B.6).

Data from HEPS 2022 suggests that some governments are already developing incentives to steer HEIs further in this direction, with five responding jurisdictions legally requiring some or all their HEIs to provide flexible or modular education (see Annex Figure C.5). Additionally, 18 out of 29 responding jurisdictions report having public funding allocations, subsidised projects, or incentive schemes for HEIs to offer micro-credentials or similar short upskilling or reskilling programmes (see Annex Figure C.6). However, it is not yet clear if these supports are adequate and sufficient to increase adult learning rates and the supply of skills to domestic economies.

Moreover, governments can provide targeted funding or subsidies to support HEIs in investing in digital tools, platforms, and technologies like AI-driven learning analytics that enable flexible and personalised learning experiences. While these advancements are not yet widely used, they can help HEIs better meet the needs of adult learners and enhance the accessibility and adaptability of upskilling or reskilling opportunities (OECD, 2021[31]).

Finally, governments could encourage the development of publicly funded or publicly promoted learning platforms where learners can directly access and take HEI-based upskilling or reskilling courses, as more than half of the surveyed jurisdictions currently lack such platforms (see Annex Figure C.7).

Incentivising engagement in the delivery and design of upskilling and reskilling

Addressing the insufficient incentives for engaging both academic staff and industry professionals in the creation and delivery of upskilling and reskilling programmes may require HEIs to consider redesigning their performance and reward structures. For academics, most current incentive structures tend to prioritise

research and – to a lesser extent, teaching in traditional degree programmes - over the development of flexible learning materials, such as micro-credentials (OECD, 2023[30]), thereby impeding the development of upskilling and reskilling opportunities within higher education.

More research is needed to determine the most effective incentive structures for encouraging academic and teaching staff engagement with upskilling and reskilling formats. However, supportive staffing policies and offering attractive, equitable remuneration and engagement models are potential solutions worth piloting to overcome these barriers to staff engagement (OECD, 2023[11]).

Similarly, there is limited knowledge about incentivising industry professionals to engage in the delivery of these programmes within HEIs. In their case, reward structures at HEIs matter less because teaching upskilling and reskilling programmes is a secondary employment for them. However, they might face difficulties in aligning teaching with their industry-based employment, for instance, due to restrictions on the allocation of teaching hours. This area merits further exploration, drawing on insights about attracting academic staff, but also drawing on the unique specificities of industry. Putting institutional procedures in place to accommodate industry practitioners' schedules could incentivise their participation in creating and delivering upskilling and reskilling programmes.

The initiatives described in Box 4 provide examples of approaches that could be adapted and tested in different contexts to better support HEI staff in engaging with flexible learning formats and upskilling/reskilling programmes.

Box 4. Empowering HE staff to deliver flexible learning and develop competencies for teaching diverse learner profiles

The **University of Skövde** in **Sweden** prioritises faculty development to improve its upskilling and reskilling course offerings. The university allocates 15 European Credit Transfer and Accumulation System (ECTS) credits of the teaching staff's workload to the development of innovative pedagogical and teaching approaches. Additionally, the university offers a bootcamp for teachers who are instructing industry professionals. All faculty members have 20% of their time allocated to teaching competence development, with follow-up dialogues to ensure continuous improvement (EUA, 2024[32]).

The **Universidade de Trás-os-Montes e Alto Douro (UTAD)** in **Portugal** is expanding its flexible study opportunities, such as part-time study options and online degree programmes, recognising the need to adapt to the evolving needs of learners (EUA, 2024[32]). A significant challenge identified is the need for more teacher time and training, especially given the shortage of academic staff in certain disciplines. To tackle this, the university has established a technical support team for asynchronous and online teaching, implemented mandatory training courses for faculty involved in online programmes, provided by Portugal's Open University (*Universidade Aberta*), and developed online modules tailored to meet teacher needs (EUA, 2024[32]).

The **Bragança Polytechnic Institute** in **Portugal** has established the **WE Working & Envisioning Community of Practice**, a vibrant and inclusive group of professors-facilitators. WE serves as a platform for members to tackle complex challenges, share effective strategies, and foster a culture of dialogue and empathy. The community's activities focus on innovation, critical thinking, and addressing complex challenges, including preparing academic and teaching staff to teach diverse learner biographies, such as adult learners, through upskilling or reskilling courses. WE also seeks to expand its reach by inviting practitioners from other institutions and facilitating cross-institutional collaboration.

The **HyPro4ST project**, co-funded by the Erasmus+ Programme, is a multi-stakeholder partnership, comprising 17 partners from 6 European countries. The project aims to upskill professionals in sustainable, hybrid, digital, creative and entrepreneurship project management in the tourism sector (HyPro4ST, 2024[33]). It focuses on developing a new "Sustainable and Hybrid Project Manager" job profile for a more sustainable tourism sector. The project is developing an online learning hub and trains prospective project managers and students. It also focuses on upscaling the skills of VET and HE trainers to adapt to the evolving needs of the tourism labour market.

Sources: Adapted from EIPC case studies received from the HyPro4ST project and Bragança Polytechnic University in Portugal; HyPro4ST (2024[33]), "Sustainable tourism innovation through hybrid project management", https://hypro4st-project.eu/; European University Association (2024[32]), "Flexible learning and teaching - Thematic Peer Group Report - LEARNING & TEACHING PAPER #21", Publications (eua.eu)

Facilitating the admission of new target audiences

Public authorities can encourage greater HEI involvement in upskilling or reskilling by facilitating the admission of adult learners through simplified recognition of prior learning (RPL) processes (see Box 5). RPL assesses an individual's knowledge and skills acquired through formal, non-formal, or informal means and determines if they meet specific competencies or learning outcomes (OECD, 2023[11]). Successful assessments can lead to benefits, such as full or partial qualifications, credits towards new qualifications, or certificates of labour market competencies, boosting learner morale and, optimising educational pathways (Meghnagi and Tuccio, 2022[34]; OECD, 2023[11]).

Streamlined RPL procedures, when integrated with effective credit transfer systems and national qualification frameworks that acknowledge all forms of learning, can greatly enhance adult education

accessibility (Tuck, 2007[35]; Auzinger, Ulicna and Messerer, 2016[36]; OECD, 2023[11]). Such improvements have the potential to enable HEIs to implement more flexible admission criteria, which could go beyond standardised exams, thereby attracting a broader and more diverse student base, especially adult learners. Ultimately, such measures could help HEIs better position themselves to react to workforce changes and update their course offerings more effectively.

Box 5. Enhancing RPL to facilitate upskilling or reskilling in French and Irish HE

France's experience with the recognition of prior learning

France has had a system for recognising and validating prior experience for more than 20 years. Adults with at least one year of work experience in a relevant field are eligible to have their work experiences validated, including knowledge and skills developed through volunteering, self-employment, or community service (OECD, 2023[11]; France VAE, 2024[37]). This process gives greater visibility to learning acquired in various settings and enables adults without prior formal education to enrol in formal learning programmes, including in HE.

To have their prior learning validated, applicants submit a portfolio of evidence demonstrating their skills, prepared with the assistance of a counsellor. The portfolio is then assessed by a panel in an interview, where applicants may also be asked to demonstrate their acquired experience through professional tasks. The panel decides whether to award a full, partial, or no qualification and provides feedback on the applicant's future path.

Ireland's National Recognition of Prior Learning in HE project

In 2020, Ireland launched a five-year project seeking to embed, enhance, and expand the provision of RPL across fourteen HEIs (Priorlearning.ie, 2024[38]). The project focuses on staff training, policy revision, enterprise engagement, learner information and data collection to create a coherent and consistent approach to RPL.

Notable achievements include policy consistency across 11 institutions, incorporation of RPL into QA processes at 13 institutions, strengthened engagement with enterprise, and the development of a one-stop-shop website for learners and businesses interested in RPL. The project has identified critical factors for advancing RPL in HE, such as viewing it as a cultural change endeavour, building relationships and trust with employers, raising awareness among stakeholders and providing ongoing staff development.

Sources: Adapted from EIPC case studies received from the Human Capital Initiative in Ireland; OECD (2023[11]), "Flexible adult learning provision: What it is, why it matters, and how to make it work", https://www.oecd.org/els/emp/skills-and-work/adult-learning/booklet-flexibility-2023.pdf; France VAE (2024[37]) , "Avec la VAE, faites valider vos compétences par un diplôme", France VAE | Bienvenue sur le portail de la VAE; Priorlearning.ie (2024[38]). "About the National RPL in HE Project", https://www.priorlearning.ie/about

5. Attracting and supporting learners

The challenge: insights from evidence and experience

Ensuring that all types of learners can participate in upskilling or reskilling is a complex challenge, which requires policymakers and practitioners to carefully research, consider and manage different learner needs.

First, available evidence suggests that participation in upskilling or reskilling varies greatly between different social groups. Data from the EU Labour Force Survey (LFS) and the OECD Survey of Adult Skills (PIAAC) show that adults with pre-existing tertiary education, and who are aged less than 54, are more

likely to participate in non-formal adult learning (Kato, Galán-Muros and Weko, 2020[39]; OECD, 2023[14]). The EU's Adult Education Survey (AES) shows similar patterns for participation in both formal and non-formal education and shows a steady decline in participation and training with age (Eurostat, 2024[40]). Job-related characteristics are another key determinant for participation, with adults working in SMEs, as well as those in certain industries, such as manufacturing appearing to participate less than those working for larger companies or employees in the information and communication or education sector (OECD, 2022[41]; OECD, 2023[42]).

The reasons for such differences in participation are complex, although evidence from the OECD's PIAAC survey finds that the main self-reported barriers to participation are a shortage of time due to work and family reasons, and the lack of employer support and financial resources (OECD, 2019[43]; OECD, 2023[14]). This can be especially important in places that lack a lifelong learning culture or policies allowing learners to take time off for training, where education providers offer programmes at inconvenient times or formats, or where employers, especially SMEs, may be unwilling or unable to accommodate employees seeking upskilling or reskilling.

Secondly, a lack of awareness about available upskilling or reskilling opportunities is another serious hindrance. This seems to be especially true in the case of learners with lower levels of prior educational attainment, who appear to be less successful at recognising their learning needs and seeking out training opportunities (Kis and Windisch, 2018[44]; OECD, 2019[43]; OECD, 2019[45]). This lack of awareness is closely linked to a lack of well-recognised, user-friendly information provision and guidance services, particularly information portals and career guidance services (OECD, 2019[43]). Data from HEPS 2022 shows that the majority of OECD member countries already have some form of a publicly funded information portal, as well as career guidance centres embedded either in HEIs or public employment services (see Annex Table B.4). However, few of these appear to provide a comprehensive starting point for all forms of upskilling or reskilling opportunities. Instead, in line with the traditional organisational separation between HE and adult and VET – which is typically the result of these two (or three) fields belonging to different ministerial portfolios – different information portals and guidance services often exist for the different types of provision, such as traditional degree programmes or micro-credentials (OECD, 2023[14]). Consequently, finding out about the different types of suitable upskilling or reskilling opportunities can be particularly complex, especially for potential learners with little prior information.

Finally, the financial burden of participation also varies between different learner groups. This includes both the direct costs of participation, such as tuition fees, and indirect costs, such as the loss of income from shorter working hours or the resources needed to free up time for participation, such as childcare costs. Unless offered as part of a government training initiative, HE-based upskilling or reskilling is mostly fee-based, and these fees can be quite high compared to the typical income of its target groups (OECD, 2023[15]). Furthermore, while data from the HEPS 2022 survey shows that many OECD jurisdictions offer some type of financial support, the coverage of these supports can be uneven, with some learner groups,

such as tertiary education graduates returning to learning being better served than employees seeking career-related training (see Annex Table B.7).

EIPC Reflections – attracting and supporting students

As part of the Strand 3 EIPC International Knowledge Exchange event, speakers and participants discussed possible strategies to tackle the obstacles currently impeding different types of learners from participating in upskilling or reskilling.

> *"Professionals today need the ability to learn in a way that fits their busy schedules. This means offering flexible learning options that allow them to study alongside their work or even at their workplace. We must consider how to balance the demands of work and family life for our students (…) New learning programmes must be inclusive and reasonably priced to ensure that everyone has the opportunity to participate."*
>
> ***Katrin Männik,*** *Head of Interdisciplinary Environment Cluster KEKO, Visiting Research Fellow, Tallinn University, Estonia and Secretary General of eucen (European University Continuing Education Association), Spain*

One such barrier is a lack of an established culture of lifelong learning in countries' labour markets. This can be manifested in a lack of awareness of upskilling or reskilling opportunities, and a lack of support for potential learners to access and combine upskilling or reskilling with work and family responsibilities.

> *"One of the most important barriers is a culture that undervalues lifelong learning, alongside a lack of clear information for potential learners (an overview of what is there [and what] is missing) and the cumbersome process of recognising competencies learnt and prior learning in general. There are things going on there and procedures, but they take time and they cost a lot of money which makes them unattractive.*
>
> ***Liesbeth Hens,*** *Policy Advisor, Flemish Ministry of Education and Training, Belgium*

Another, more immediate and practical barrier explored at the seminar was the role of centralised digital platforms. These can play a crucial role for improving the navigation and accessibility of different upskilling or reskilling offers.

> *"There was a high demand for a one-stop shop to find all available digital training opportunities in a given country...[which] centralises information, making it easier for users to find relevant opportunities without having to sift through Google results. This centralised approach is crucial for providing accessible and comprehensive information on digital training opportunities…"*
>
> ***Marina Andrieu****, Founder - WIDE ANDCO, Coordinator - Digital Skills and Jobs Coalition, Luxembourg*

Notes: *This information is derived from the presentations and discussions at the international online knowledge exchange 'Promoting competencies for digital and green innovation through upskilling or reskilling in HE' held on 9 April 2024. See Annex A for the event agenda.*

Options for policy and practice

Strengthening information and guidance provision

Tackling the lack of awareness among adult learners requires the provision of well-recognised, comprehensive, and user-friendly information and guidance mechanisms, which allow prospective learners to find out about and evaluate different offerings and select programmes that meet their needs (Hofer,

Zhivkovikj and Smyth, 2020[46]; OECD, 2023[30]). Policymakers can use a variety of mechanisms for this including information portals and career guidance services.

Information portals can be helpful in creating a clear starting place for prospective learners with limited existing knowledge of available learning opportunities. The core function of such portals is to list available offers from different providers, but some have been developed to offer additional features, such as allowing learners to compare programmes by certain key information points or provide information on potential sources of funding (OECD, 2023[30]). Information portals can be operated by a variety of actors, from public bodies to sectoral associations such as a national Rectors' Conference or an HEI consortium. However, co-ordinating the development and continued functioning of a portal might require some form of public support. Also, given that information portals for a specific type of provision, such as traditional degree programmes or VET are already in place, and well-recognised in many OECD jurisdictions, policymakers might benefit from co-ordinating with the providing bodies of already existing information portals, to see whether these portals need to be replaced, expanded, or linked up.

Career guidance services can increase the efficiency of upskilling or reskilling provision by helping prospective learners to choose relevant programmes, and through that avoid wasting resources on unsuitable forms of training. As of now, career guidance services appear to primarily take the form of dedicated centres attached to either HEIs, adult learning centres or public employment services (OECD, 2023[30]). More recently, initiatives have started experimenting with incorporating digital individualised guidance functions based on either a combination of data amalgamation from skills forecasting activities or large language models, such as OpenAI's GPT 4 (eCampusOntario, 2024[47]). Guidance services, particularly centres attached to HEIs, VET or adult learning bodies are relatively common, with data from the HEPS 2022 showing that 20 of the 29 responding jurisdictions had such centres in some shape or form (see Annex Table B.4). However, much of the existing provision is organised along the lines of traditional divisions between HE, VET, and other forms of adult learning, meaning that policymakers might want to reorganise or expand them to ensure that they are accessible and relevant for a wider range of different prospective learner groups. Germany, Luxembourg and Denmark provide interesting examples in this regard (see Box 6).

Box 6. Informing and guiding students in Germany, Luxembourg and Denmark

Consolidating of all of Germany's HE-based upskilling or reskilling in one place

Launched in 2022 under the co-ordination of the German Rectors' Conference, "*hoch&weit" (higher and further)* is a national information portal dedicated to synthetising continuing education offers from public and government-recognised HEIs from all of Germany's 19 federal states (hoch & weit, 2022[48]). Aimed at making university continuing education more visible for potential learners with a wide range of different academic and vocational backgrounds, the portal also provides a presentation of the recently introduced certificate, diploma and degree system, some potential sources of funding and learning options available for certain specific learner groups, such as learners without the Abitur - Germany's leaving high-school examination that entitles learners to enter HE (hoch & weit, 2022[49]).

A "one-stop-shop" for digital skills in Luxembourg

Digital Skills and Jobs Coalition (DSJC) Luxembourg is a national initiative of businesses, social partners, non-profit organisations and education providers aimed at tackling Luxembourg's digital skills gap. In 2023, the DJSC launched the *digitalskills.lu* platform, a centralised portal for upskilling or reskilling for the digital transition. This is expected to become a "one-stop shop" for digital skills development in Luxembourg, meaning that it was designed to not only list available training opportunities from different education providers, but also become a hub for sharing news and publicising industry events and project opportunities in Luxembourg.

A single starting point to guide learners towards appropriate upskilling or reskilling opportunities

Denmark's *UddannelsesGuiden* ("The education guide") portal serves as a first point of contact for nearly all types of prospective learners. The portal presents an overview of the different programme types available across Denmark's HE, VET, and adult education provision, complete with information about admission and entry requirements, and potential sources of student finance. To better guide prospective learners, *UddannelsesGuiden* also provides information about the Danish labour market, including the role of different industries or descriptions of some common jobs and occupations (OECD, 2019[50]; Government of Denmark, 2024[51]). Since 2011, *UddannelsesGuiden* also offers a guidance service called *eVejledning* (eGuide or eWayfinder), which responds to prospective learners' questions via phone, email, and bookable one-to-one video meetings (Cedefop, 2024[52]; Government of Denmark, 2024[53]).

Source: Adapted from the presentation made by Marina Andrieu during the EIPC international knowledge exchange workshop in April 2024 (2024[54]), "Über uns [About us]", https://hoch-und-weit.de/ueber-uns/, hoch & weit, (2022[48]), "Getting Skills Right: Creating responsive adult learning systems". https://www.oecd.org/employment/emp/adult-learning-systems-2019.pdf, OECD, (2019[50]), "eGuidance service" https://rb.gy/0f3nr7, European Centre for the Development of Vocational Training (Cedefop), (2024[52]), "UddannelsesGuiden [The education guide]" https://www.ug.dk/, Government of Denmark, (2024[51]), "eVejledning [eGuidance]" https://www.ug.dk/evejledning, Government of Denmark, (2024[53])

Mechanisms that support adult learners find time for upskilling or reskilling

The development of a culture of lifelong learning in which participation in upskilling or reskilling programmes is accessible for adult learners is a complex process that requires time and consistent commitment from public authorities, education providers and employers. Policymakers can accelerate this by actively seeking to mainstream regular participation in upskilling or reskilling-focused education and training programmes through a combination of pushing and incentivising HEIs and employers. For example, policymakers could consider introducing, strengthening, and expanding instruments that enable workers to take time off for training. Examples of this include introducing and strictly enforcing rights to education leave (see Box 7), mandating employers to make reasonable accommodations when workers partake in training, regularly updating the types of programmes workers can request educational leave for, creating ways through which learners and employers are either fully or partially compensated for lost earnings and social security contributions, and expanding such rights to workers in all types of contracts (OECD, 2019[45]).

Targeted financial support for individual learners if needed

While it is not unreasonable to expect learners to contribute to the costs of upskilling or reskilling, some learner types can only be realistically expected to participate with targeted material support. Policymakers can use a range of instruments to provide support for individual learners, which include grants, loans, training vouchers, individual learning accounts (ILAs), tax credits and subsidies for associated expenses. The most appropriate support mechanisms will vary between different target groups and countries. In some cases, policymakers might prefer providing some form of (basic) financial support to all learners wanting to engage in upskilling or reskilling. In other cases, policymakers might wish to concentrate their resources either partially or fully on a select group of target learners or target course types (see Box 7).

Box 7. Understanding and tackling barriers to participation in the EU and Singapore

Supporting prospective learners to take time for unpaid upskilling or reskilling training leave in Austria…

Austria's *Bildungskarenz* ("Training leave") is an example of unpaid training leave. Austrian employees can request training leave lasting up to 12 months every four years. This can be taken out in instalments with a minimum duration of two months for each leave request (AK, 2024[55]). Training leave can also be requested for part-time training, during which the learners work fewer hours (*Bildungsteilzeit*) (AK, 2024[56]). While the leave itself is normally unpaid, learners can apply for further training allowances from the country's public employment service (*Arbeitsmarktservice*, AMS). Learners are also allowed to continue earning an income from work, up to the marginal income threshold (*Geringfügigkeitsgrenz*) of EUR 518,44 per month (OECD, 2019[45]; AMS, 2024[57]). As of now, the *Bildungskarenz* is an employer-dependent training leave, meaning that employees cannot demand, but only request to be formally released of their work duties for the duration of their studies.

… and paid upskilling and reskilling leave in Germany

Some German federal states have paid training leave polices (Cedefop, 2024[58]). Examples of this include Bremen's *Bildungszeit* ("Training time") and Hesse's *Bildungsurlaub* ("Training leave"), both of which allow employees who have been with an employer for more than 6 months to request up to 5 days of educational leave per year. These 5 days can also be taken as 10 days for a two-year period. During this time, employers must continue paying the employee's full wages, and employers can only reject request for training leave under limited conditions. However, the learning opportunities for which training leave can be taken must be among a list of recognised training events. (Arbeitnehmerkammer Bremen, 2022[59]; Government of the State of Hesse, 2024[60]; Bildungsurlaub.de, n.d.[61]).

Supporting learners cover the costs of upskilling or reskilling in Singapore

SkillsFuture Credit is a publicly funded student finance mechanism first introduced in 2015 as part of Singapore's SkillsFuture initiative. All Singaporeans aged 25 or over receive a non-expirable allowance of SGD 500, which they can use to cover the costs of eligible courses listed on the MySkillsFuture portal. A one-time top-up of SGD 500 was provided in 2020, but this will expire if left unused by the end of 2025. From May 2024, Singaporeans aged 40 or more will also receive an additional top-up of SDG 4 000, which they can use to pursue 'substantive skill reboots' through a list of about 7 000 selected courses (Government of Singapore, 2024[62]).

Source: "*Bildungskarenz [*Training leave*]*" https://t.ly/MW4I0, Arbeiterkammer Österreich [Austrian Chamber of Workers and Employees] (2024[55]), "*Bildungsteilzeit [Part-time work for education]*", https://t.ly/GcwAv, Arbeiterkammer Österreich (2024[56]), "Bildungskarenz: Weiterbildung mit Einkommen [Training leave: training with income]" https://t.ly/z73KM, Arbeitsmarktservice, [Public Employment Service Austria] (2024[57]), "Educational leave", https://t.ly/icY6l, European Centre for the Development of Vocational Training (Cedefop) (2024[58]), "Fragen und Antworten: Bildungszeit [Questions and Answers: Training time]" https://t.ly/SjShh, Arbeitnehmerkammer Bremen [Bremen Chamber of Employees] (2022[59]), and "Bildungsurlaub [Training leave]", https://arbeitswelt.hessen.de/bildungsurlaub/, Government of the State of Hesse (2024[60]).

6. Securing industry and employer engagement

The challenge: insights from evidence and experience

To successfully address the labour market demands of the digital and green transition, upskilling or reskilling offers need to reflect the needs of employers. While HEIs have a key responsibility, they cannot succeed alone, and require input and support from employers and industry bodies, such as professional associations and chambers of commerce. There are several different forms of collaboration and industry participation, ranging from mechanisms to exchange information, for example through advisory boards and committees, to promoting sectoral skills alliances and engaging industry through programme co-design and co-delivery. Public authorities in many OECD countries recognise the need for closer industry-HE collaboration, as data from HEPS 2022 show that 22 out of 29 surveyed jurisdictions have some kind of

policy in place to promote co-operation between firms and HE providers of upskilling or reskilling (see Annex Table B.5).

While there is considerable heterogeneity in the mechanisms used, the most common are instruments aimed at encouraging information exchange, which were reported to be present in 21 out of 29 surveyed jurisdictions (see Annex Table B.5). Facilitating regular information exchange can be valuable, but it is unlikely to work on its own, especially if there are no further incentives or a well-established culture of HEI-industry collaboration (Davey et al., 2018[63]). To yield actionable insights, forums and committees require industry representatives to present a consistent vision of medium to long-term skill needs acquired from skill forecasting activities. And while there are encouraging examples of such industry-level discussions, typically co-ordinated by industry associations, maintaining engagement over a longer term remains a concern. This is especially true for SMEs, which appear to be less likely to be involved in talent strategy and skills needs discussions across industries, and whose needs are therefore less likely to be reflected in high-level forums and committees (OECD, 2021[64]; OECD, 2023[65]).

Previous OECD research and desk research conducted for this project found that programmes that were co-designed or delivered between education providers and industry representatives, are more successful in reflecting labour market demands (OECD, 2023[14]). However, this form of engagement appears to be less common, with data from HEPS 2022 showing that mechanisms for facilitating co-delivery are among the least common policies, albeit still present in about half of the participating jurisdictions (see Annex Table B.5). Co-creation and delivery require substantially more time and resource investment from both employers and HEIs than purely HE-led initiatives. This is further exacerbated by three common obstacles of HE-industry collaboration.

Firstly, there are significant cultural differences between the priorities, motivation, and project management cultures of HEIs and private businesses (OECD, 2024[1]). This manifests itself in a variety of ways, the most important of which is the sometimes-clashing expectations about the ideal size and length of upskilling or reskilling programmes. Businesses often demand programmes of a few hours or days' duration, so as to minimise employee absence from work. In contrast, HEIs worry about the rigour of very short programmes, and often think in traditional HE teaching load units, such as ECTS credits, where one ECTS credit corresponds to at least 30 hours' work (OECD, 2023[30]; OECD, 2023[15]).

Secondly, the processes associated with establishing and managing joint projects with industry actors are often slow, complicated, and generally not straightforward, which can make them quite burdensome for both industry representatives and academics who, as mentioned previously, might already have elevated workloads (Davey et al., 2018[63]).

Thirdly, the incentives offered to both academics and businesses often appear to be insufficient in countering the above-mentioned practical inconveniences. On the level of individuals, unless explicitly linked to career advancement, neither academics, nor industry professionals are likely to consider the delivery of upskilling and reskilling programmes as a priority – which can lead to difficulties in maintaining engagement in joint projects in the medium to long-term. On the level of companies, training workers and especially dedicating paid employees' time to develop upskilling and reskilling programmes can be regarded as a non-essential expense which is likely to be deprioritised in favour of core, profit-making activities. This is particularly notable in the case of SMEs, who often lack the means to spare paid employee time on activities that do not directly generate profits, including the upskilling or reskilling of their employees, or partaking in delivery/designing activities (OECD, 2023[65]). To offset this, joint HE-industry projects on upskilling or reskilling need to provide clearly articulated benefits to individual HEIs (or HEI departments), industry actors, and individual academic or employees. In the case of businesses, policymakers have slightly fewer tools to adjust incentives for individual actors than in the case of HEIs. Nonetheless, providing tools to ease the organisation burden and adjusting financial support such as tax policies can provide a good starting point, especially for the incentivisation of SMEs.

EIPC Reflections – securing industry and employer engagement

Speakers and participants at the Strand 3 EIPC International Knowledge Exchange event also explored the role of employers and industry representatives, with a particular focus on how cross-sectoral collaboration between HE and industry actors can underpin the supply of a labour force that is well-prepared for future challenges.

> *"We are engaged in community outreach, particularly with SMEs, which are vital to Türkiye's economy. Our capacity-building efforts include educational programmes and outreach initiatives, such as teacher training to enhance their skills in sustainability. We are also working with businesses to develop programmes that equip students with the necessary skills for the green transition, [these programmes are] supported by major energy companies in Türkiye."*
>
> **Tamer Atabarut**, *Faculty Member at Boğaziçi University, Türkiye and Member of the Steering Committee of eucen (European University Continuing Education Association), Spain*

Speakers and participants also discussed the significance of exchanging information, involving advisory boards and industry representatives, and promoting skills alliances. Such strategies enable HEIs to remain informed about rapidly changing labour market demands, and as a result, shape offers to meet specific skill needs.

> *"We work with the trade body Tech UK and individual employers, including C-suite executives on our advisory boards, to directly ask employers about their needs. This leads us to create courses for existing skill shortages, such as AI, machine learning, data analytics and cybersecurity."*
>
> **Rachid Hourizi**, Director, Institute of Coding, United Kingdom

Yet another challenge explored at the event was the engagement of workers and employers from SMEs and sectors with a high percentage of low-skilled employees. Addressing this group's particular needs will likely require strengthening incentives for participation and ensuring that offers specifically cater to them.

> *"However, tourism businesses, especially micro, small, and medium enterprises, struggle to find, attract, and retain skilled employees...over 90% of tourism enterprises employ less than 10 people, which often results in training activities for employees being neglected. There's also difficulty for many entrepreneurs to keep up with digitalisation changes and a limited understanding of employers' needs and travellers' expectations by education and training providers."*
>
> **Rino Vitelli**, Head of EU projects and partnerships, Federturismo Confindustria, Italy

Notes: *This information is derived from the presentations and discussions at the international online knowledge exchange 'Promoting competencies for digital and green innovation through upskilling or reskilling in HE' held on 9 April 2024. See Annex A for the event agenda.*

Options for policy and practice

Steering HE - industry discussions to address culture clashes

Public authorities can enhance the efficacy of policy mechanisms by proactively addressing culture clashes between HEIs and industry. One way to do this is by encouraging and steering education–industry discussions, for example within existing mechanisms of information exchange, such as forums or committees. This can make it possible to map, discuss and propose solutions and guidelines, for the most common cultural challenges of HE-industry collaboration. Additionally, if a jurisdiction already has mechanisms in place to foster co-design or co-delivery, these can be used to push HEIs and industry to negotiate and propose programme formats, which public authorities could in turn reflect in the regulations governing HEIs. Box 8 provides interesting examples of how industry bodies and consortia are participating in discussions and projects to bridge skills gaps and foster collaboration between HEIs and businesses in specific sectors.

Calibrating financial incentives to respond to the needs of SMEs

Subsidies and financial supports are a key lever through which public authorities can incentivise employers to engage in upskilling or reskilling. Previous OECD analysis, as well as data from HEPS 2022 suggest that when financial support mechanisms exist, they tend to be open to all types of employers (see Annex

Table B.8) (OECD, 2017[66]). While offering supports across a range of employer types is necessary to support uptake and foster a culture of engagement across industries, undifferentiated support mechanisms could risk mostly benefiting companies who already engage the most. This is especially problematic for SMEs who lack the resources needed to provide training opportunities for their employees, and for whom lowering the costs of training through financial supports is even more crucial (OECD, 2023[65]). These supports can range from loans and grants from public funds to co-finance training to tax credits for training costs. Within this, previous OECD research suggests that direct subsidies, in particular vouchers, can be particularly helpful in raising SME engagement (OECD, 2021[64]; OECD, 2021[67]).

Box 8. Channels for talent strategy discussions

Federturismo Confindustria is the industry body representing Italy's tourism industry. It participates in national and EU discussions on talent strategies, including the Erasmus+ funded **PANTOUR** project. This project, involving 13 European HEIs and industry bodies (Federturismo Confindustria, 2024[68]), aims to develop sectoral skills intelligence tools, map upskilling and reskilling supports, and conduct studies on digitalisation and job trends in the EU tourism sector. Additionally, the project seeks to outline emerging job roles and skills, align with the EU's Pact for Skills, and enhance training programmes and assessment methods in collaboration with VET and HEI providers (Next Tourism Generation, n.d.[69]).

Cosmetic Valley is a non-profit organisation that brings together research institutions, HEIs, and training providers with businesses from the cosmetics and perfume industries in France. The organisation is closely involved in industrial strategy discussions with public authorities and sectoral co-ordination activities, and develops multiple tools that allow businesses to identify and establish partnerships with relevant research institutions (Cosmetic Valley, n.d.[70]). The association is involved in facilitating upskilling by offering online and offline continuing education modules, which were developed based on consultations, site visits, workshops, or enquiries from member companies and

are delivered in blocks of one or two days by instructors with practical industry experience (Cosmetic Valley, 2023[71]).

The **Institute of Coding** (IoC) is a consortium of HEIs, employers, industry representatives and charities whose aim is to provide training programmes that address digital skills shortages in the UK's tech sector, as well as other rapidly digitalising industries (Institute of Coding, 2022[72]). Established in 2018, the IoC has benefited from at least GBP 20 million in initial public funding, with supplementary funding from HEIs and industry partners. Since then, the consortium has transitioned towards primarily raising funds from industry partners (OECD, 2023[14]; Hourizi, 2024[73]). The IoC takes a regional and collaborative approach to skills needs and has Inclusion and Industry and Diversity Advisory Boards that provide ongoing input for programme development. All courses are delivered with input from industry representatives, and most offer learners employment support.

Source: Adapted from EIPC case studies received from Cosmetic Valley and EIT Digital and presentations made by Rino Vitelli and Rachid Hourizi during the EIPC international knowledge exchange workshop in April 2024 (2024[74]; 2024[73]), 'Formation Cosmetic Valley Programme 2024', https://formation.cosmetic-valley.com/fr/programme, Cosmetic Valley (2023[71]; n.d.[70]) , 'PANTOUR: Pact for Next Tourism Generation Skills', https://nexttourismgeneration.eu/pantour/, Next Tourism Generation (n.d.[69]) and 'Micro-credentials for lifelong learning and employability: Uses and possibilities', https://www.oecd-ilibrary.org/education/micro-credentials-for-lifelong-learning-and-employability_9c4b7b68-en, OECD, (2023[14]).

Simplify the processes of HE-industry collaboration

Yet another way in which public authorities can facilitate stronger industry engagement is by actively working to simplify the processes and reduce the administrative and organisational burden associated with HEI-industry collaboration (OECD, 2024[75]). Firstly, to connect businesses with appropriate HEI actors, public authorities may consider mechanisms that allow businesses to identify and get in touch with departments and academics with relevant expertise (OECD, 2022[76]; OECD, 2023[15]). There are multiple mechanisms that can be used for this, ranging from dedicated thematic forums to web platforms. Of these, one of the most promising avenues is the use of digital tools, particularly tools based on web scraping and large language models (see Box 9). Secondly, public authorities should look at mechanisms that reduce the administrative and financial toll of engaging and administering joint HEI-industry upskilling or reskilling projects. For example, they could create and consolidate guidelines and templates for administrative processes associated with accessing public support mechanisms (see Box 9).

Box 9. Guiding employer engagement with upskilling or reskilling

Using large language models and AI to connect businesses with academics

eCampusOntario is a non-profit organisation funded by the Ministry of Colleges and Universities of Canada's province of Ontario. Its aim is to provide potential learners, publicly funded HEIs, and businesses with the tools needed to easily learn about, engage with, participate in, and develop higher education and upskilling programmes. Their Microcredentials Portal provides targeted, personalised programme recommendations from the catalogue of thousands of micro-credentials offered across institutions to build or hone skills in line with specific industry or job requirements.

Recognising the challenge of engaging businesses, over 90% of which are SMEs, *eCampusOntario* also developed the "Ontario Collaborative Innovation Platform" (OCIP) – an AI-enabled matchmaking service for businesses seeking R&D partnerships with HEIs. OCIP leverages a cloud computing platform and generative AI tools to ensure data accuracy and uses a matching algorithm to analyse and match project proposals from businesses with relevant experts in Ontario's HEIs. It also identifies applicable government funding opportunities and proposes potentially relevant micro-credential

programmes from the *eCampusOntario* Micro-credential Portal catalogue. If a business decides to pursue a project, the OCIP platform also provides templates for all manner of associated paperwork, including applying for certain types of relevant tax credits.

EIT Initiatives for HE and Industry Collaboration

The European Institute of Innovation and Technology (EIT) is a prominent innovation network and an integral part of Horizon Europe, the EU's Framework Programme for Research and Innovation. With a budget of EUR 3 billion under Horizon Europe's Pillar 3, 'Innovative Europe', the EIT aims to create jobs, deliver sustainable and smart growth, and foster innovation through partnerships across industries. These partnerships, called Knowledge and Innovation Communities, bring together organisations across business, education and research to find and commercialise solutions to pressing global challenges.

The EIT has launched several initiatives to support its mission, focusing on upskilling and reskilling the workforce to drive innovation and facilitate the digital and green transitions:

- **(d) Digital Academy:** This initiative aims to close the digital skills gap in the EU by offering intensive training courses in key digital areas, equipping adult learners with the necessary skills to drive innovation and adapt to the evolving demands of the digital transition (EIT Digital, 2024[77]).
- **RESCHIP4EU:** Focused on the semiconductor industry, this initiative enhances skills in chip design and embedded systems, fostering innovation and collaboration (European Commission, 2024[78]).
- **EIT Food:** This initiative works towards transforming the food system to make it more sustainable, healthy, and trusted, contributing to the green transition. It offers educational programmes to upskill and reskill learners with the knowledge and competencies needed to drive sustainability and innovation in the food industry (EIT Food, 2024[79]).

These initiatives collectively seek to contribute to the upskilling and reskilling of adult learners, fostering collaboration between HE and industry, and addressing key challenges in their respective sectors. By focusing on innovation and the development of competencies relevant to the digital and green transitions, the EIT plays a role in preparing the European workforce for the future.

Source: Adapted from EIPC case studies received from EIT and a presentation delivered by Robert Luke during the 7th Meeting of the OECD Group of National Experts on HE in March 2024, as well as "EIT Digital – Master School" https://t.ly/QxT8a, EIT Digital (2024[77]), "Reinforcing Skills in Chips Design for Europe (RESCHIP4EU)", https://t.ly/Cyzq0, European Commission (2024[78]), "About EIT Food", https://t.ly/xFcC8, EIT Food (2024[79]), and "Ontario Collaborative Innovation Platform" https://rb.gy/v2tnzg, eCampusOntario (2024[80])

Higher Education Policy

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References

AK (2024), *Bildungskarenz*, Arbeiterkammer (AK) Österreich [Austrian Chamber of Workers and Employees], Vienna, https://www.arbeiterkammer.at/beratung/bildung/bildungsfoerderungen/Bildungskarenz.html#:~:text=Die%20Mindestdauer%20der%20Bildungskarenz%20betr%C3%A4gt,mindestens%20zwei%20Monate%20umfassen%20muss. (accessed on 22 April 2024). [55]

AK (2024), *Bildungsteilzeit*, Arbeiterkammer (AK) Österreich [Austrian Chamber of Workers and Employees], Vienna, https://www.arbeiterkammer.at/beratung/bildung/bildungsfoerderungen/Bildungsteilzeit.html (accessed on 22 April 2024). [56]

AMS (2024), *Bildungskarenz: Weiterbildung mit Einkommen*, Arbeitsmarktservice (AMS) [Public Employment Service Austria], Vienna, https://www.ams.at/arbeitsuchende/aus-und-weiterbildung/bildungskarenz-weiterbildung-mit-einkommen (accessed on 22 April 2024). [57]

Andrews, D., G. Nicoletti and C. Timiliotis (2018), "Digital technology diffusion: A matter of capabilities, incentives or both?", *OECD Economics Department Working Papers*, No. 1476, OECD Publishing, Paris, https://doi.org/10.1787/7c542c16-en. [85]

Andrieu, M. (2024), *The digitalskills.lu platform*. [54]

Arbeitnehmerkammer Bremen (2022), *Fragen und Antworten: Bildungszeit*, Arbeitnehmerkammer Bremen [Bremen Chamber of Employees], Bremen, https://www.arbeitnehmerkammer.de/service/magazin-der-arbeitnehmerkammer/bam/ausgabe-mai-juni/fragen-und-antworten-bildungszeit.html (accessed on 22 April 2024). [59]

Autor, D., F. Levy and R. Murnane (2003), "The Skill Content of Recent Technological Change: An Empirical Exploration", *The Quarterly Journal of Economics*, Vol. 118/4, pp. 1279-1333, https://doi.org/10.1162/003355303322552801. [2]

Auzinger, M., D. Ulicna and K. Messerer (2016), *Study on higher Vocational Education and Training in the EU*, European Commission, Brussels, https://doi.org/10.2767/421741 (accessed on 16 May 2024). [36]

Battisti, M., C. Dustmann and U. Schönberg (2023), "Technological and Organizational Change and the Careers of Workers", *Journal of the European Economic Association*, Vol. 21/4, pp. 1551-1594, https://doi.org/10.1093/jeea/jvad014. [12]

Bildungsurlaub.de (n.d.), *Bildungsurlaub in Hessen*, https://www.bildungsurlaub.de/infos/bundeslaender/bildungsurlaub-in-hessen (accessed on 22 April 2024). [61]

Cedefop (2024), *Educational leave*, Financing adult learning database, https://www.cedefop.europa.eu/en/tools/financing-adult-learning-db/search/educational-leave-0 (accessed on 22 April 2024). [58]

Cedefop (2024), "eGuidance service", *Developing Information Technologies and Labour Market Information in Lifelong Guidance: Resources for guidance*, European Centre for the Development of Vocational Training (Cedefop), Thessaloniki, https://www.cedefop.europa.eu/en/tools/resources-guidance/handbook-transferability/case-studies/eguidance-service (accessed on 13 May 2024). [52]

Cedefop (2023), *Next generation skills intelligence for more learning and better matching – Skills anticipation trends, opportunities and challenges in EU Member States*, European Centre for the Development of Vocational Training (Cedefop), Thessaloniki, https://data.europa.eu/doi/10.2801/180485 (accessed on 16 May 2024). [22]

Cedefop (2020), *Empowering adults through upskilling and reskilling pathways: Vol. 1: adult population with potential for upskilling and reskilling.*, European Centre for the Development of Vocational Training (Cedefop), Thessaloniki, http://data.europa.eu/doi/10.2801/691134. [90]

Cedefop (2020), *Empowering adults through upskilling and reskilling pathways: Vol. 1: adult population with potential for upskilling and reskilling.*, European Centre for the Development of Vocational Training (Cedefop), Thessaloniki, http://data.europa.eu/doi/10.2801/691134. [10]

Cedefop (2015), *The role of modularisation and unitisation in vocational education and training*, https://doi.org/10.2801/38475. [83]

Cedefop (2014), *Terminology of European education and training policy (Second Edition): A selection of 100 key terms*, https://doi.org/10.2801/15877. [82]

Cirlan, E. and T. Loukkola (2020), *European project MICROBOL: Micro-credentials linked to the Bologna Key Commitments*, European University Association, Brussels, https://eua.eu/downloads/publications/microbol%20desk%20research%20report.pdf (accessed on 13 May 2024). [19]

Cosmetic Valley (2023), *Formation Cosmetic Valley Programme 2024*, https://formation.cosmetic-valley.com/fr/programme? (accessed on 22 April 2024). [71]

Cosmetic Valley (n.d.), *Dynamisons vos projets de l'idée à la réalisation*, https://www.cosmetic-valley.com/action/dynamisons-vos-projets-de-lidee-la-realisation (accessed on 22 April 2024). [70]

Council of the European Union (2022), *Council recommends European approach to micro-credentials - Consilium*, Press release, https://www.consilium.europa.eu/en/press/press-releases/2022/06/16/council-recommends-european-approach-to-micro-credentials/ (accessed on 8 December 2022). [18]

Davey, T. et al. (2018), *The state of university-business cooperation in Europe*, Publications Office of the European Union, Luxembourg, https://doi.org/10.2766/676478. [63]

Deming, D. and K. Noray (2020), "Earnings Dynamics, Changing Job Skills, and STEM Careers*", *The Quarterly Journal of Economics*, Vol. 135/4, pp. 1965-2005, https://doi.org/10.1093/qje/qjaa021. [84]

Digivisio (2024), *Finland lives on diverse expertise.*, https://digivisio2030.fi/en/frontpage/. [25]

eCampusOntario (2024), *eCampusOntario launches AI-enabled Micro-Credential Portal tool to Help Learners Address Skills Gaps*, https://www.ecampusontario.ca/ecampusontario-launches-ai-enabled-micro-credential-portal-tool-to-help-learners-address-skills-gaps/ (accessed on 14 May 2024). [47]

eCampusOntario (2024), *Ontario Collaborative Innovation Platform (OCIP)*, https://ocip.ecampusontario.ca/?_gl=1%2Ayr4dyg%2A_ga%2ANTI1ODM1NjIwLjE3MTA1MTA2NDY.%2A_ga_FCMSL2CN7Q%2AMTcxMzUyNzQ4My4zLjEuMTcxMzUyNzQ5OC40NS4wLjA (accessed on 6 May 2024). [80]

EIT Digital (2024), *EIT Digital - Master School*, https://masterschool.eitdigital.eu/ (accessed on 13 June 2024). [77]

EIT Food (2024), *About EIT Food*, https://www.eitfood.eu/about-us (accessed on 13 June 2024). [79]

EUA (2024), *Flexible learning and teaching - Thematic Peer Group Report - LEARNING & TEACHING PAPER #21*, European University Association, Brussels, https://eua.eu/resources/publications/1109:flexible-learning-and-teaching.html. [32]

Eueropean Commission (2022), "A New European Innovation Agenda", *COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS*, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022DC0332. [9]

European Commission (2024), *Reinforcing Skills in Chips Design for Europe (RESCHIP4EU)*, EU Funding & Tenders Portal, https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/org-details/954616286/project/101158828/program/43152860/details (accessed on 13 June 2024). [78]

European Commission (n.d.), *Green skills to support the green transition of enterprises*, https://commission.europa.eu/projects/green-skills-support-green-transition-enterprises_en. [26]

European Commission (n.d.), *The New European Innovation Agenda*, https://research-and-innovation.ec.europa.eu/strategy/support-policy-making/shaping-eu-research-and-innovation-policy/new-european-innovation-agenda_en#flagships. [4]

Eurostat (2024), *Participation rate in education and training (last 12 months) by sex and age*, Adult Education Survey (AES), https://ec.europa.eu/eurostat/databrowser/view/trng_lfs_17__custom_11248345/default/table?lang=en (accessed on 7 May 2024). [40]

Eurostat (2024), *Participation rate in education and training (last 4 weeks) by sex and age*, https://ec.europa.eu/eurostat/databrowser/view/trng_lfse_01/default/table?lang=en. [86]

Eurostat (2024), *Participation rate in education and training (last 4 weeks) by sex and age*, https://ec.europa.eu/eurostat/databrowser/view/trng_lfse_01/default/table?lang=en. [13]

Eurydice (2022), *Slovakia: Strategy for Lifelong Learning and Counselling for the years 2021-2030*, https://eurydice.eacea.ec.europa.eu/news/slovakia-strategy-lifelong-learning-and-counselling-years-2021-2030#:~:text=The%20main%20goal%20of%20the,realise%20their%20potential%20in%20personal%2C. [28]

Federturismo Confindustria (2024), *About us*, https://www.federturismo.it/it/?option=com_content&view=article&id=19201:english&catid=469 (accessed on 22 April 2024). [68]

Federturismo Confindustria (2024), *Devising skills strategies for a successful transition in the tourism industry*. [74]

Finnish National Agency for Education (2023), *Studyinfo - Explore lifelong learning in Finland*, Opintopolku (StudyInfo), https://opintopolku.fi/konfo/en/ (accessed on 7 November 2023). [89]

France VAE (2024), *Avec la VAE, faites valider vos compétences par un diplôme*, https://vae.gouv.fr/ (accessed on 16 May 2024). [37]

Government of Denmark (2024), *eVejledning [eGuidance]*, UddannelsesGuiden [The education guide], https://www.ug.dk/evejledning (accessed on 13 May 2024). [53]

Government of Denmark (2024), *UddannelsesGuiden [The education guide]*, Ministry of Children and Education, https://www.ug.dk/ (accessed on 13 May 2024). [51]

Government of Singapore (2024), *SkillsFuture Credit*, https://www.skillsfuture.gov.sg/initiatives/mid-career/credit#:~:text=Opening%20SkillsFuture%20Credit%20of%20%24500,opening%20credit%20of%20S%24500 (accessed on 22 April 2024). [62]

Government of Singapore (2023), *SkillsFuture Credit*, www.skillsfuture.gov.sg, https://www.skillsfuture.gov.sg/initiatives/mid-career/credit#:~:text=Opening%20SkillsFuture%20Credit%20of%20%24500,opening%20credit%20of%20S%24500 (accessed on 12 September 2023). [81]

Government of the State of Hesse (2024), "Bildungsurlaub", *Arbeitswelt Hessen*, Government of the State of Hesse, Wiesbaden, https://arbeitswelt.hessen.de/bildungsurlaub/ (accessed on 22 April 2024). [60]

Hershbein, B. and L. Kahn (2018), "Do Recessions Accelerate Routine-Biased Technological Change? Evidence from Vacancy Postings", *American Economic Review*, Vol. 108/7, pp. 1737-1772, https://doi.org/10.1257/aer.20161570. [3]

hoch & weit (2022), *Finanzierung & Förderung*, hoch & weit - – Das Weiterbildungsportal der Hochschulen [The continuing education portal of Higher Education Institutions], https://hoch-und-weit.de/weiterbildung-foerderung/ (accessed on 10 October 2023). [49]

hoch & weit (2022), *Über uns*, – Das Weiterbildungsportal der Hochschulen [The continuing education portal of Higher Education Institutions], https://hoch-und-weit.de/ueber-uns (accessed on 16 April 2024). [48]

Hofer, A., A. Zhivkovikj and R. Smyth (2020), "The role of labour market information in guiding educational and occupational choices", *OECD Education Working Papers*, No. 229, OECD Publishing, Paris, https://doi.org/10.1787/59bbac06-en. [46]

Hourizi, R. (2024), *Identifying and responding to evolving skill needs in the technology sector*. [73]

HyPro4ST (2024), *Sustainable tourism innovation through hybrid project management*, https://hypro4st-project.eu/. [33]

IBE (n.d.), *Microcredentials - piloting a new solution to support lifelong learning*, Instytut Badań Edukacyjnych (Educational Research Institute, IBE), Warsaw, https://www.ibe.edu.pl/en/national-projects/microcredentials (accessed on 17 June 2024). [29]

ILO/ OECD (2018), *Approaches to anticipating skills for the future of work*, ILO/ OECD, Geneva, https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_646143.pdf (accessed on 22 December 2023). [20]

Institute of Coding (2022), *Upskill or reskill in digital*, Institute of Coding (IoC), https://instituteofcoding.org/ (accessed on 15 January 2023). [72]

Jotpa (2024), *https://www.jotpa.fi/fi*. [23]

Kato, S., V. Galán-Muros and T. Weko (2020), "The emergence of alternative credentials", *OECD Education Working Papers*, No. 216, OECD Publishing, Paris, https://doi.org/10.1787/b741f39e-en. [39]

Kis, V. and H. Windisch (2018), "Making skills transparent: Recognising vocational skills acquired through workbased learning", *OECD Education Working Papers*, No. 180, OECD Publishing, Paris, https://doi.org/10.1787/5830c400-en. [44]

Lang, G. and T. Triantoro (2022), "Upskilling and Reskilling for the Future of Work: A Typology of Digital Skills Initiatives", *Information Systems Education Journal (ISEDJ)*, Vol. 20/4, pp. 97-106, https://files.eric.ed.gov/fulltext/EJ1358297.pdf (accessed on 6 May 2024). [17]

Leth, P. (2021), *Development of Micro Credentials in [the] IDA*, Danish Society of Engineers, Paris. [87]

Mack, N., A. Guerriero and S. Kubicki (2021), *Taxonomy of current training offers for energy efficiency in the EU*, Luxembourg Institute of Science and Technology, Luxembourg, https://instructproject.eu/wp-content/uploads/2021/10/INSTRUCT-Taxonomy-of-current-training-offers-for-energy-efficiency-in-the-EU.pdf (accessed on 6 May 2024). [16]

Meghnagi, M. and M. Tuccio (2022), "The recognition of prior learning: Validating general competences", *OECD Social, Employment and Migration Working Papers*, No. 270, OECD Publishing, Paris, https://doi.org/10.1787/2d9fb06a-en. [34]

Muench, S. et al. (2022), *Towards a green & digital future*, Publications Office of the European Union, Luxembourg, , JRC129319, https://doi.org/doi:10.2760/54. [8]

Next Tourism Generation (n.d.), *PANTOUR: Pact for Next Tourism Generation Skills*, https://nexttourismgeneration.eu/pantour/ (accessed on 22 April 2024). [69]

Nordlund, H. and J. Piiroinen (2022), *Digivisio 2030: Finland as a model country for flexible learning*. [24]

OECD (2024), "Cultivating the next generation of green and digital innovators: The role of higher education", *OECD Education Policy Perspectives*, No. 95, OECD Publishing, Paris, https://doi.org/10.1787/bb6e432e-en. [1]

OECD (2024), "Knowledge exchange and collaboration between universities and society in Italy: The ITA.CON Project", *OECD SME and Entrepreneurship Papers*, No. 47, OECD Publishing, Paris, https://doi.org/10.1787/ae130814-en. [75]

OECD (2023), "Education and innovation for the digital and green transitions: How higher education can support effective curricula in schools", *OECD Education Policy Perspectives*, No. 81, OECD Publishing, Paris, https://doi.org/10.1787/3dedf4cb-en. [6]

OECD (2023), "Education and innovation for the digital and green transitions: How higher education can support teachers and school leaders", *OECD Education Policy Perspectives*, No. 82, OECD Publishing, Paris, https://doi.org/10.1787/6407e9f4-en. [5]

OECD (2023), *Education at a Glance 2023: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/e13bef63-en. [42]

OECD (2023), *Flexible adult learning provision: What it is, why it matters,*, OECD Publishing, Paris, https://www.oecd.org/els/emp/skills-and-work/adult-learning/booklet-flexibility-2023.pdf (accessed on 16 May 2024). [11]

OECD (2023), "Micro-credential policy implementation in Finland, the Slovak Republic, Slovenia and Spain", *OECD Education Policy Perspectives*, No. 86, OECD Publishing, Paris, https://doi.org/10.1787/c3daa488-en. [15]

OECD (2023), "Micro-credentials for lifelong learning and employability: Uses and possibilities", *OECD Education Policy Perspectives*, No. 66, OECD Publishing, Paris, https://doi.org/10.1787/9c4b7b68-en. [14]

OECD (2023), "Public policies for effective micro-credential learning", *OECD Education Policy Perspectives*, No. 85, OECD Publishing, Paris, https://doi.org/10.1787/a41f148b-en. [30]

OECD (2023), *Retaining Talent at All Ages*, Ageing and Employment Policies, OECD Publishing, Paris, https://doi.org/10.1787/00dbdd06-en. [65]

OECD (2022), *Digital upskilling, reskilling & finding talent: The role of SME ecosystems*. [76]

OECD (2022), *Education at a Glance 2022: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/3197152b-en. [41]

OECD (2022), *Higher Education Policy Survey 2022 – Part B - Upskilling and Reskilling in Higher Education*, https://survey.oecd.org/upload/surveys/369333/files/HEPS%202022%20Part%20B.pdf. [7]

OECD (2021), "Funding of CET and financial incentives", in *Continuing Education and Training in Germany*, OECD Publishing, Paris, https://doi.org/10.1787/3a664f72-en. [67]

OECD (2021), *Incentives for SMEs to Invest in Skills: Lessons from European Good Practices*, Getting Skills Right, OECD Publishing, Paris, https://doi.org/10.1787/1eb16dc7-en. [64]

OECD (2021), "Micro-credential innovations in higher education : Who, What and Why?", *OECD Education Policy Perspectives*, No. 39, OECD Publishing, Paris, https://doi.org/10.1787/f14ef041-en. [91]

OECD (2021), *OECD Digital Education Outlook 2021: Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots*, OECD Publishing, Paris, https://doi.org/10.1787/589b283f-en. [31]

OECD (2020), *Strengthening the Governance of Skills Systems: Lessons from Six OECD Countries*, OECD Skills Studies, OECD Publishing, Paris, https://doi.org/10.1787/3a4bb6ea-en. [21]

OECD (2019), “Getting Skills Right: Creating responsive adult learning systems”, OECD Publishing , Paris, https://www.oecd.org/employment/emp/adult-learning-systems-2019.pdf (accessed on 13 May 2024). [50]

OECD (2019), “Getting Skills Right: Engaging low-skilled adults in learning”, https://www.oecd.org/employment/emp/engaging-low-skilled-adults-2019.pdf (accessed on 22 April 2024). [45]

OECD (2019), *Getting Skills Right: Future-Ready Adult Learning Systems*, Getting Skills Right, OECD Publishing, Paris, https://doi.org/10.1787/9789264311756-en. [43]

OECD (2017), *Financial Incentives for Steering Education and Training*, Getting Skills Right, OECD Publishing, Paris, https://doi.org/10.1787/9789264272415-en. [66]

Priorlearning.ie (2024), *About the National RPL in Higher Education Project*, https://www.priorlearning.ie/about. [38]

Suomen Yrittäjät (2023), *Yrittäjät-akatemia [Yrittäjät Academy]*, https://www.yrittajat.fi/yrittajat-akatemia/ (accessed on 6 May 2024). [88]

Tuck, R. (2007), *An Introductory Guide to National Qualifications Frameworks: Conceptual and Practical Issues for Policy Makers*, International Labour Organisation, Geneva, https://webapps.ilo.org/wcmsp5/groups/public/@ed_emp/@ifp_skills/documents/instructionalmaterial/wcms_103623.pdf (accessed on 16 May 2024). [35]

Vlaamse Onderwijsraad (2023), *Microcredentials in Vlaanderen*, https://www.kwaliteitszorg.vluhr.be/files/Docs/microcredentials_vlor.pdf. [27]

Annex A. Education and Innovation Practice Community International Online Knowledge Exchange Agenda: *Promoting competencies for digital and green innovation through upskilling or reskilling in higher education*

Tuesday 9 April 2024, 14:30 – 16:00 CET

14:30 – 14:40	***Welcome*** • **Simon Roy**, Team Lead, HE Policy, Directorate for Education and Skills, OECD • **Luca Perego**, Head of Unit, "Innovation and EIT", Directorate-General for Education, Youth, Sport and Culture, European Commission
Session 1 – Higher education's role in reskilling and upskilling for the green and digital transition	
14:40 – 14:55	***Higher education institutions as catalysts for lifelong learning. A focus on flexible learning formats and green competences*** • **Katrin Männik** (Tallinn University, Estonia)**, Christina Paulus** –BOKU - University of Natural Resources and Life Sciences, Austria) and **Tamer Atabarut** (Boğaziçi University, Türkiye)**,** Members of the Steering Committee of eucen (European University Continuing Education Association), Spain *Audience Q&A*
Session 2 – Identifying skills needs for the digital and green transitions	
14:55 – 15:25	***Identifying and responding to evolving skill needs in the technology sector*** • **Rachid Hourizi**, Director, Institute of Coding, United Kingdom ***Devising skills strategies for a successful transition in the tourism industry*** • **Rino Vitelli**, Head of EU projects and partnerships, Federturismo Confindustria, Italy *Audience Q&A* ***Moderation:*** **Simon Roy,** Team Lead, Higher Education Policy, Directorate for Education and Skills, OECD
Session 3 – Policies to support the uptake of reskilling and upskilling	
15:25 – 15:55	***Making sense of the options: the creation of a the "one-stop shop" for all training and news on digital skills and opportunities in Luxembourg*** • **Marina Andrieu,** Founder - WIDE ANDCO, Coordinator- Digital Skills and Jobs Coalition, Luxembourg, Luxembourg ***Attracting learners to lifelong learning in HE in the Flemish Community of Belgium*** • **Liesbeth Hens,** Policy Advisor, Flemish Ministry of Education and Training, Belgium *Audience Q&A* ***Moderation:*** **Anja Meierkord,** Labour Market Economist, Directorate for Employment, Labour and Social Affairs, OECD
Closing remarks	

15:55– 16:00	• **Loredana Lombardi**, Policy Officer, Unit "Innovation and EIT", Directorate General for Education, Youth, Sport and Culture, European Commission

Annex B. Selected individual responses from the 2022 Higher Education Policy Survey (HEPS) on upskilling or reskilling – Tables

Table B.1. Types of upskilling or reskilling objectives pursued

	Pursued objectives (✓: Objective currently pursued; ~: near-term objective)								
	Creation of new traditional HE programmes	Guidelines for the creation of new credentials based on short learning programmes	Unbundling or expanding the flexibility of traditional programmes	Targets and/or specific activities to encourage individuals without HE qualifications to upskill in HE	Revising eligibility requirements for established student grant and loan programmes to expand their use for U+R	Expanding the use of recognition of prior learning	Introduction of new financial supports, incentives, or benefits targeted to the pursuit of U+R	Strengthening incentives in legislation, regulation or funding for HEIs to provide U+R opportunities	Strengthening incentives for employers to collaborate in developing or subsidising HE upskilling or U+R
Australia	✓	✓							✓
Austria	~	~	~			~		~	
Canada	✓	✓~	✓~	✓~	✓	✓	✓	✓	✓
Croatia		✓	✓	✓		~	✓	✓	
Denmark	~	✓	✓	✓		✓	✓	✓~	✓
England	✓~	~	✓~	✓~	~	~	✓~	✓~	✓~
Finland		✓	✓	✓		✓	✓	~	~
Flemish Comm. (Belgium)		~							
France			~			~			
French Comm. (Belgium)					✓	✓			
Hungary	✓	✓	✓	✓	~	✓	~		
Ireland	✓	~	✓	✓		✓	~	~	~
Italy		~							
Japan	~	✓	✓	✓					
Latvia		~	~			✓	~	~	~
Lithuania	✓	~	~	✓	~	✓	✓	~	✓
Luxembourg		~				✓		✓	
Netherlands	✓~	~	✓~			✓~	✓~	✓~	✓~
New Zealand	✓	✓	✓	✓				✓	✓
Norway			✓~	✓	✓~		✓	✓	✓
Peru					~			~	
Poland									
Portugal		✓		✓	✓			✓	✓
Romania		~				~			
Scotland	✓	✓	✓	✓	~	~	~	~	~
Slovak Republic		~	~	~			~	~	~
Slovenia	✓	✓	~	✓~			~	✓	
Sweden			✓			✓	✓	✓	✓
Switzerland	~				~		~	~	~

Notes: HE, HEIs and U+R stand for higher education, higher education institutions and upskilling or reskilling respectively. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. 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.

Table B.2. Data collection on upskilling or reskilling

	Type of upskilling or reskilling data collected					
	Participation/ enrolment in traditional degree programmes by adult learners	Completion rates in traditional degree programmes by adult learners	Participation/ enrolment in non-degree upskilling or reskilling programmes	Certifications or credentials awarded to participants in non-degree upskilling or reskilling programmes	Previous employment or educational background of adult learners	Labour market outcomes for adult learners
Australia	✓	✓				
Austria	✓	✓				✓
Canada	✓	✓	✓	✓	✓	✓
Croatia						
Denmark	✓	✓			✓	✓
England	✓	✓	✓	✓	✓	✓
Finland	✓	✓			✓	✓
Flemish Comm. (Belgium)	✓	✓			✓	
France	✓		✓			
French Comm. (Belgium)	✓			✓		
Hungary						
Ireland	✓	✓	✓	✓	✓	✓
Italy						
Japan	✓		✓			
Latvia	✓	✓	✓	✓		
Lithuania	✓	✓			✓	
Luxembourg						
Netherlands	✓	✓				
New Zealand	✓	✓	✓	✓	✓	✓
Norway	✓	✓	✓			
Peru						
Poland						
Portugal	✓	✓	✓	✓		
Romania	✓	✓	✓	✓		
Scotland	✓	✓	✓	✓		
Slovak Republic						
Slovenia						
Sweden	✓	✓	✓	✓	✓	✓
Switzerland	✓	✓	✓		✓	✓

Notes: French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. 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.

Table B.3. System actors involved in the anticipation of needs for upskilling or reskilling offers at higher education level

	Ministry of Education/ HE/ Skills	Ministry of Employment/ Labour/ Social Affairs	Other ministries	Public agencies/ bodies with a remit for skills	Individual HEIs	Employer associations	Unions or employee organisations	Sectoral bodies representing HEIs	Industry/ sector associations or private companies
Australia									
Austria	✓	✓	✓		✓	✓	✓	✓	✓
Canada	✓	✓	✓	✓	✓	✓	✓	✓	✓
Croatia		✓							
Denmark	✓	✓	✓		✓	✓	✓	✓	
England	✓	✓	✓	✓	✓	✓	✓	✓	✓
Finland	✓	✓		✓	✓	✓	✓	✓	✓
Flemish Comm. (Belgium)	✓	✓	✓	✓	✓			✓	✓
France	✓	✓	✓	✓	✓	✓	✓		✓
French Comm. (Belgium)	✓				✓	✓	✓	✓	✓
Hungary				✓	✓				
Ireland	✓	✓	✓	✓	✓	✓	✓	✓	✓
Italy	✓	✓		✓	✓	✓	✓		✓
Japan	✓				✓				
Latvia	✓	✓			✓	✓			✓
Lithuania	✓	✓	✓	✓	✓	✓	✓	✓	✓
Luxembourg	✓	✓		✓		✓	✓		
Netherlands	✓	✓	✓			✓	✓	✓	✓
New Zealand		✓	✓	✓	✓	✓			✓
Norway	✓	✓	✓	✓	✓	✓	✓		
Peru					✓			✓	✓
Poland	✓			✓		✓			
Portugal	✓	✓			✓				✓
Romania	✓	✓	✓	✓	✓	✓			✓
Scotland	✓			✓	✓		✓	✓	✓
Slovak Republic	✓	✓		✓	✓	✓	✓	✓	
Slovenia	✓	✓	✓	✓	✓	✓	✓		
Sweden				✓	✓	✓	✓		✓
Switzerland	✓				✓			✓	✓

Notes: HE refers to higher education while HEIs stands for higher education institutions. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. 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.

Table B.4. Means available for prospective learners to discover higher education reskilling or upskilling opportunities

	A publicly funded information portal for learners to compare choices	Information or guidance centres for prospective learners in public employment or adult learning centres	Information or guidance centres located within higher education institutions	Publicly funded media campaigns to inform learners about upskilling or reskilling opportunities
Australia	✓			
Austria			✓	
Canada	✓	✓	✓	✓
Croatia		✓	✓	
Denmark	✓	✓	✓	
England	✓	✓	✓	✓
Finland	✓	✓	✓	✓
Flemish Comm. (Belgium)	✓		✓	
France	✓	✓	✓	
French Comm. (Belgium)	✓	✓	✓	✓
Hungary	✓	✓	✓	✓
Ireland	✓	✓		✓
Italy			✓	
Japan	✓	✓		✓
Latvia	✓	✓		✓
Lithuania	✓	✓	✓	✓
Luxembourg	✓	✓		
Netherlands	✓	✓		
New Zealand	✓	✓	✓	
Norway	✓		✓	
Peru		✓		
Poland			✓	
Portugal	✓			✓
Romania			✓	
Scotland	✓	✓	✓	
Slovak Republic				
Slovenia		✓	✓	
Sweden	✓	✓	✓	
Switzerland	✓	✓	✓	

Notes: French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. 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.

Table B.5. Mechanisms to promote co-operation between firms and higher education providers of upskilling or reskilling

	Mechanisms for companies to co-operate with higher education institutions on the organisation of upskilling or reskilling opportunities	Mechanisms for employers to communicate information on skills needs to higher education institutions	Mechanisms for higher education institutions to raise awareness among employers of available upskilling or reskilling opportunities for employees	Mechanisms for employers to co-design or take the lead in designing learning material delivered by higher education institutions
Australia		✓	✓	✓
Austria			✓	
Canada	✓	✓	✓	✓
Croatia	✓	✓		
Denmark	✓	✓	✓	
England	✓	✓	✓	✓
Finland	✓	✓	✓	✓
Flemish Comm. (Belgium)				
France	✓	✓	✓	
French Comm. (Belgium)	✓			
Hungary	✓	✓		✓
Ireland	✓	✓	✓	✓
Italy	✓	✓	✓	✓
Japan				
Latvia	✓	✓	✓	
Lithuania	✓	✓	✓	✓
Luxembourg				
Netherlands	✓			✓
New Zealand	✓	✓		
Norway	✓	✓		✓
Peru			✓	
Poland		✓		✓
Portugal	✓	✓		✓
Romania	✓	✓		✓
Scotland	✓			
Slovak Republic		✓		
Slovenia		✓	✓	
Sweden	✓	✓	✓	
Switzerland	✓	✓		

Notes: French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. 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.

Table B.6. Types of currently available flexible options and opportunities for adult learners seeking to take up upskilling or reskilling opportunities at advanced skills level

	Specific entry pathway to ISCED 5 programmes	Specific entry pathway to ISCED 6 programmes	Specific entry pathway to ISCED 7 programmes	ISCED 3 or ISCED 4 level programmes	Types of short non-degree programmes or "micro-credentials"					Types of flexible options available		
					Non-degree undergraduate level courses or programmes	Non-degree postgraduate level courses or programmes	Certificates of specialisation or advanced education	Preparation for professional/ industry–recognised certifications	Ad-hoc or tailored training for specific employers/ industries	Options for learners to enrol on a "module-by-module" basis, building up to a full qualification at their own pace	A distinct "continuing education" centre or function, in addition to traditional degree offerings	Options for learners to retain credits gained and have these recognised by other higher education providers if they disengage, but later re-enrol in higher education
Australia	✓	✓	✓		✓	✓			✓	✓		✓
Austria	✓	✓	✓								✓	✓
Canada	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Croatia					✓	✓	✓	✓	✓		✓	
Denmark	✓	✓	✓		✓	✓			✓	✓	✓	✓
England	✓	✓	✓	✓						✓		✓
Finland		✓	✓		✓	✓	✓		✓		✓	✓
Flemish Comm. (Belgium)	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓
France	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
French Comm. (Belgium)	✓	✓	✓				✓		✓	✓		✓
Hungary							✓	✓		✓	✓	
Ireland	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Italy					✓	✓	✓	✓	✓		✓	
Japan	✓	✓	✓		✓	✓		✓	✓		✓	✓
Latvia					✓	✓	✓	✓	✓	✓	✓	✓
Lithuania	✓		✓	✓							✓	✓
Luxembourg	✓	✓	✓				✓		✓		✓	✓

					Types of short non-degree programmes or "micro-credentials"					Types of flexible options available		
	Specific entry pathway to ISCED 5 programmes	Specific entry pathway to ISCED 6 programmes	Specific entry pathway to ISCED 7 programmes	ISCED 3 or ISCED 4 level programmes	Non-degree undergraduate level courses or programmes	Non-degree postgraduate level courses or programmes	Certificates of specialisation or advanced education	Preparation for professional/ industry–recognised certifications	Ad-hoc or tailored training for specific employers/ industries	Options for learners to enrol on a "module-by-module" basis, building up to a full qualification at their own pace	A distinct "continuing education" centre or function, in addition to traditional degree offerings	Options for learners to retain credits gained and have these recognised by other higher education providers if they disengage, but later re-enrol in higher education
Netherlands	✓	✓	✓		✓	✓	✓	✓	✓		✓	
New Zealand	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Norway	✓	✓		✓	✓	✓			✓	✓	✓	✓
Peru		✓								✓	✓	✓
Poland		✓	✓									✓
Portugal	✓	✓			✓	✓			✓	✓	✓	✓
Romania				✓	✓							✓
Scotland	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓
Slovak Republic				✓								✓
Slovenia					✓	✓						✓
Sweden										✓		✓
Switzerland		✓	✓			✓	✓	✓	✓	✓	✓	✓

Notes: French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. 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.

Table B.7 Types of public financial support available for different types of learners to participate in upskilling or reskilling in higher education

	Types of public financial supports available to learners to support their participation in upskilling or reskilling in higher education SGL: Student grants and loans; ILA: Individual learning or training accounts; ETV: Education/ training vouchers; TC: Tax credits; Subs.: Subsidies for associated expenses																								
	First time entrants over a specific age threshold established by policy					Tertiary graduates returning to learning					Learners in specific target groups					Employees seeking career-related continuing education and training					Learners seeking specific skills aligned to labour market needs				
	SGL	ILA	ETV	TC	Subs.	SGL	ILA	ETV	TC	Subs.	SGL	ILA	ETV	TC	Subs.	SGL	ILA	ETV	TC	Subs.	SGL	ILA	ETV	TC	Subs.
Australia																									
Austria	✓								✓				✓						✓					✓	
Canada	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Croatia			✓					✓					✓					✓					✓		
Denmark	✓		✓								✓					✓									
England	✓					✓					✓					✓					✓				
Finland						✓				✓											✓				
Flemish Comm. (Belgium)	✓		✓		✓	✓		✓		✓	✓		✓		✓	✓		✓		✓	✓		✓		✓
France		✓					✓					✓					✓					✓			
French Comm. (Belgium)																									
Hungary					✓	✓				✓				✓	✓					✓					✓
Ireland	✓				✓	✓				✓	✓				✓				✓		✓				✓
Italy											✓														
Japan	✓					✓					✓					✓			✓		✓				
Latvia																					✓				
Lithuania	✓			✓	✓				✓	✓			✓		✓								✓		
Luxembourg				✓					✓																
Netherlands	✓					✓		✓					✓					✓					✓		
New Zealand	✓					✓					✓				✓	✓					✓				

	Types of public financial supports available to learners to support their participation in upskilling or reskilling in higher education **SGL: Student grants and loans; ILA: Individual learning or training accounts; ETV: Education/ training vouchers; TC: Tax credits; Subs.: Subsidies for associated expenses**																									
	First time entrants over a specific age threshold established by policy					Tertiary graduates returning to learning					Learners in specific target groups					Employees seeking career-related continuing education and training					Learners seeking specific skills aligned to labour market needs				
	SGL	ILA	ETV	TC	Subs.	SGL	ILA	ETV	TC	Subs.	SGL	ILA	ETV	TC	Subs.	SGL	ILA	ETV	TC	Subs.	SGL	ILA	ETV	TC	Subs.
Norway						✓																			
Peru																									
Poland																									
Portugal	✓					✓					✓										✓				
Romania	✓																								
Scotland											✓										✓				
Slovak Republic																									
Slovenia																									
Sweden						✓										✓					✓				
Switzerland				✓					✓					✓					✓				✓		✓

Notes: SGL, ILA, ETV, TC, and Subs. denote student grants and loans, individual learning or training accounts, education/training vouchers, tax credits, and subsidies for associated expenses, respectively. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. 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.

Table B.8. Types of available government subsidies and financial support for businesses, employees and training programmes

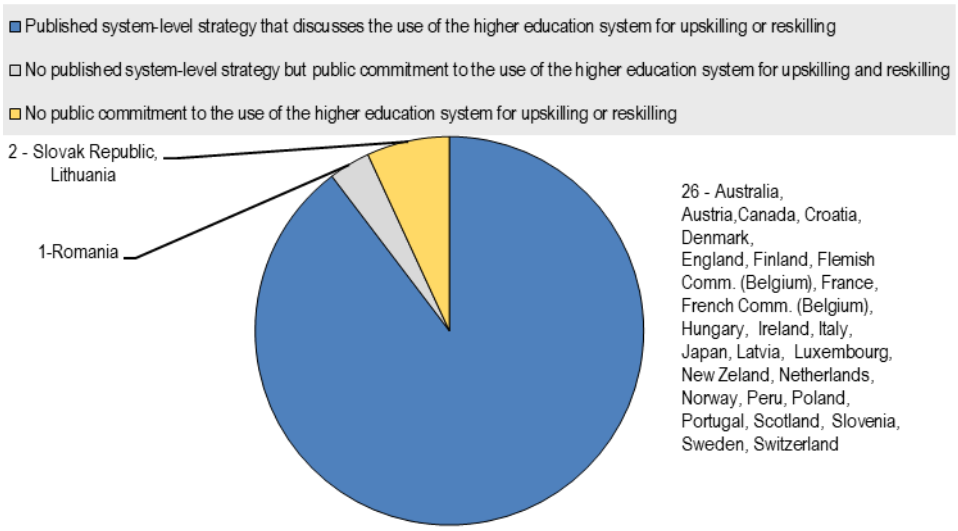
	Government subsidies or other financial supports to employers to support U+R of their staff members (✓: Yes; ×: No)	Financial supports covering U+R provided by HEIs specifically (✓: Yes; ×: No)	**Types of businesses/ employers who may benefit from subsidies or financial supports**				**Types of employees who may benefit from subsidies or financial supports**				**Types of upskilling or reskilling covered by the subsidies or financial supports**			**Types of available subsidies/ financial supports**			
			All businesses/ employers	SMEs	Businesses under a certain employee size that are not SMEs	Businesses in particular economic sectors	All employees	Employees in certain grades or categories	Employees under certain income thresholds	Other types of employees	All types, at the discretion of the employer /employee	U+R related to the main industry/ economic sector of the employer	U+R related to specific skills in high demand	Tax credits deductible against training costs	Co-financing of training costs from public funds	Training fund where employers can apply for funding and/ or other supports for U+R employees	Compensating the employer for paid staff leave for U+R purposes
Australia	×																
Austria	×																
Canada	✓	✓	✓	✓	✓	✓	✓	×	×	×	✓	✓	✓	✓	✓	✓	×
Croatia	✓	✓	✓	×	×	×	×	✓	×	×	✓	×	×	×	×	✓	×
Denmark	✓	✓	✓	×	×	×	×	✓	×	×	✓	×	×	×	✓	×	✓
England	✓	✓	✓	✓	×	✓	✓	×	×	×	×	✓	✓	×	✓	✓	×
Finland	×																
Flemish Comm. (Belgium)	✓	✓	×	✓	×	×	✓	×	×	×	✓	×	×	×	✓	✓	✓
France	×																
French Comm. (Belgium)	×																
Hungary	✓	✓	✓	×	×	✓	✓	×	×	✓	✓	×	✓	✓	✓	✓	×
Ireland	✓	✓	✓	×	×	×	✓	×	×	×	✓	×	×	✓	✓	✓	✓
Italy	✓	✓	×	×	×	✓	×	×	✓	×	×	✓	✓	×	×	✓	✓
Japan	✓	✓	✓	×	×	×	×	×	×	✓	×	✓	✓	×	×	×	✓
Latvia	✓	✓	×	✓	×	✓	×	✓	✓	×	×	✓	✓	✓	✓	×	×

	Government subsidies or other financial supports to employers to support U+R of their staff members (✓: Yes; ×: No)	Financial supports covering U+R provided by HEIs specifically (✓: Yes; ×: No)	**Types of businesses/ employers who may benefit from subsidies or financial supports**				**Types of employees who may benefit from subsidies or financial supports**				**Types of upskilling or reskilling covered by the subsidies or financial supports**			**Types of available subsidies/ financial supports**			
			All businesses/ employers	SMEs	Businesses under a certain employee size that are not SMEs	Businesses in particular economic sectors	All employees	Employees in certain grades or categories	Employees under certain income thresholds	Other types of employees	All types, at the discretion of the employer /employee	U+R related to the main industry/ economic sector of the employer	U+R related to specific skills in high demand	Tax credits deductible against training costs	Co-financing of training costs from public funds	Training fund where employers can apply for funding and/ or other supports for U+R employees	Compensating the employer for paid staff leave for U+R purposes
Lithuania	✓	✓	×	✓	×	✓	×	✓	×	×	✓	✓	✓	×	✓	×	×
Luxembourg	✓	✓	✓	×	×	×	✓	×	×	×	✓	×	×	×	✓	×	✓
Netherlands	✓	✓	✓	×	×	×	✓	×	×	×	✓	×	×	×	✓	×	×
New Zealand	×																
Norway	×																
Peru	×																
Poland	✓	✓	✓	×	×	×	✓	×	×	×	✓	×	×	×	✓	×	×
Portugal	✓	✓	✓	×	×	×	✓	×	×	×	×	×	✓	×	✓	✓	×
Romania	×																
Scotland	✓	✓	✓	×	×	×	✓	×	×	×	×	×	✓	×	✓	×	×
Slovak Republic	✓	×															
Slovenia	✓	×															
Sweden	×																
Switzerland	×																

Notes: HE, HEIs, SMEs, and U+R represent higher education, higher education institutions, small and medium-sized enterprises, and upskilling or reskilling, respectively. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium.
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.

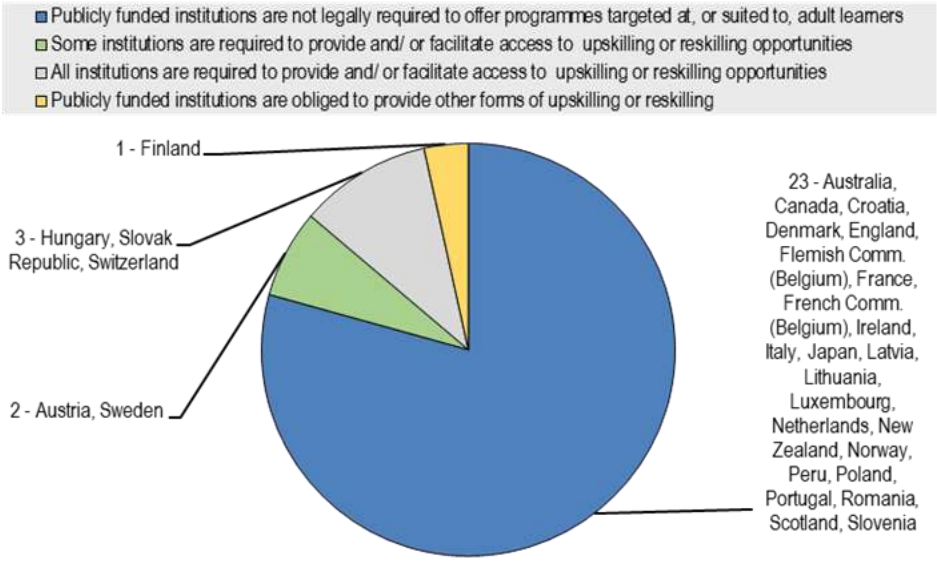
Annex C. Selected individual responses from the 2022 Higher Education Policy Survey (HEPS) on upskilling and reskilling – Figures

Figure C.1. Published system-level strategies on the use of the higher education system for upskilling or reskilling



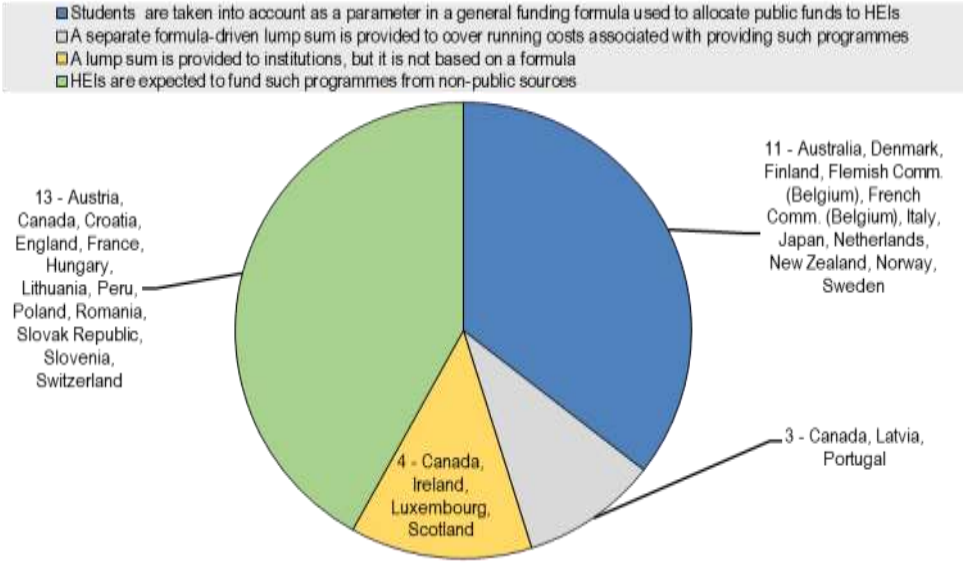
Notes: Total jurisdictions responding = 29. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. In Canada, responses provided in the figure may be applicable to some provinces and territories only. In Switzerland, 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.

Figure C.2. Legal requirements on the provision of upskilling or reskilling



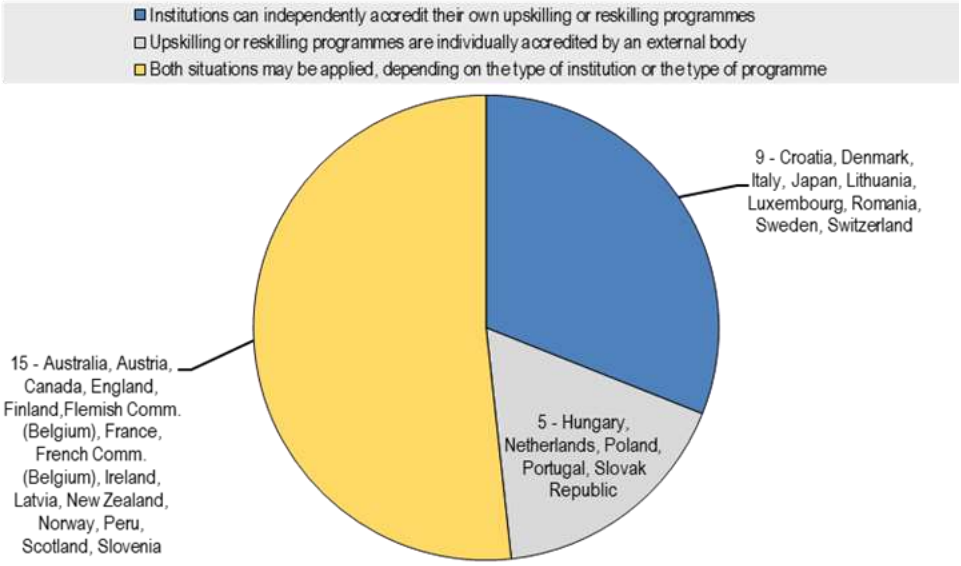
Notes: Total jurisdictions responding = 29. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. In Canada, responses provided in the figure may be applicable to some provinces and territories only. In Switzerland, 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.

Figure C.3. Accounting of enrolments in higher education upskilling or reskilling in public core funding allocations to higher education institutions



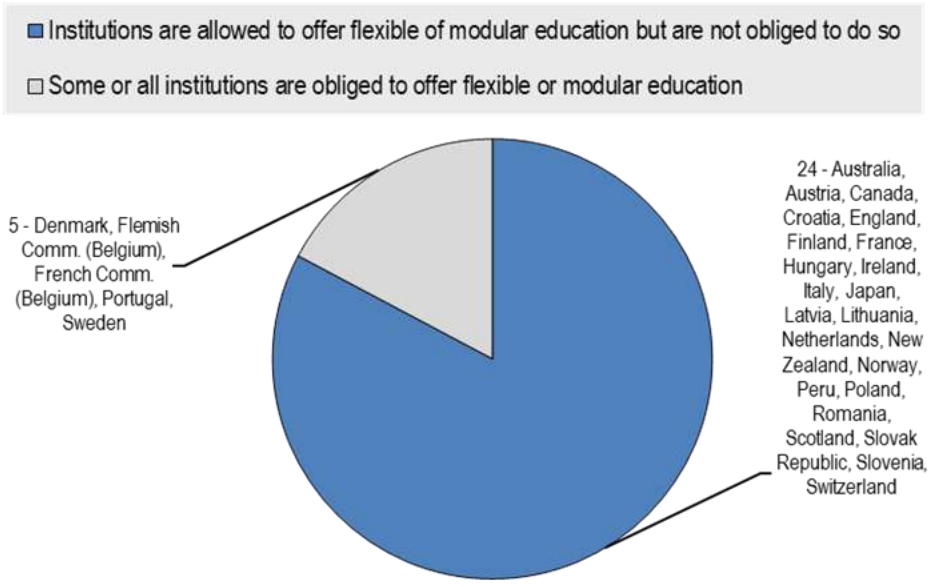
Notes: Total jurisdictions responding = 29. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. In Canada, responses provided in the figure vary by provinces and territory. In Switzerland, education - and higher education - 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.

Figure C.4. Accreditation of upskilling or reskilling education programmes in publicly funded higher education institutions



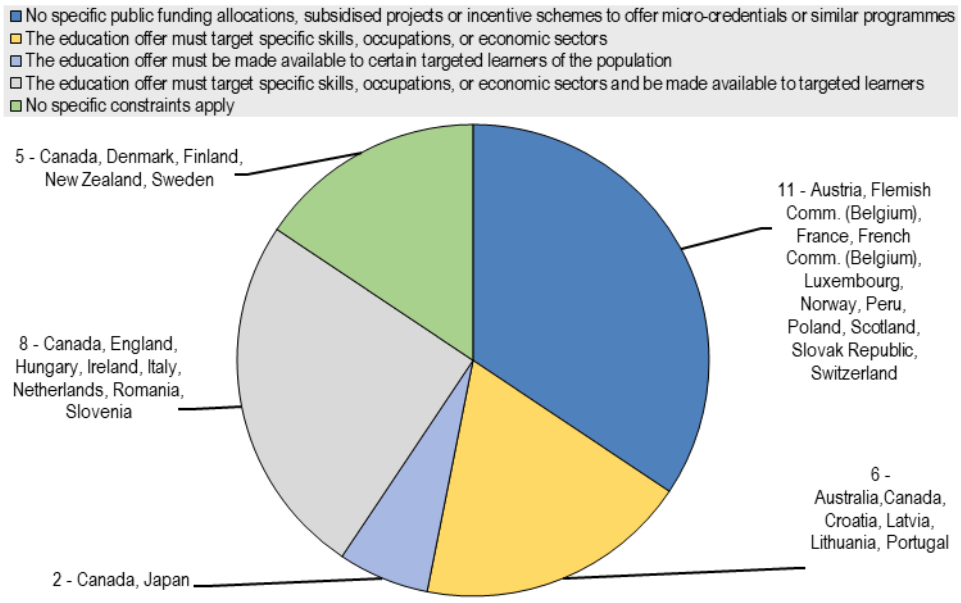
Notes: Total jurisdictions responding = 29. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. In Canada, responses provided in the figure may be applicable to some provinces and territories only. In Switzerland education - 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.

Figure C.5. Legal requirements on the provision of flexible or modular learning



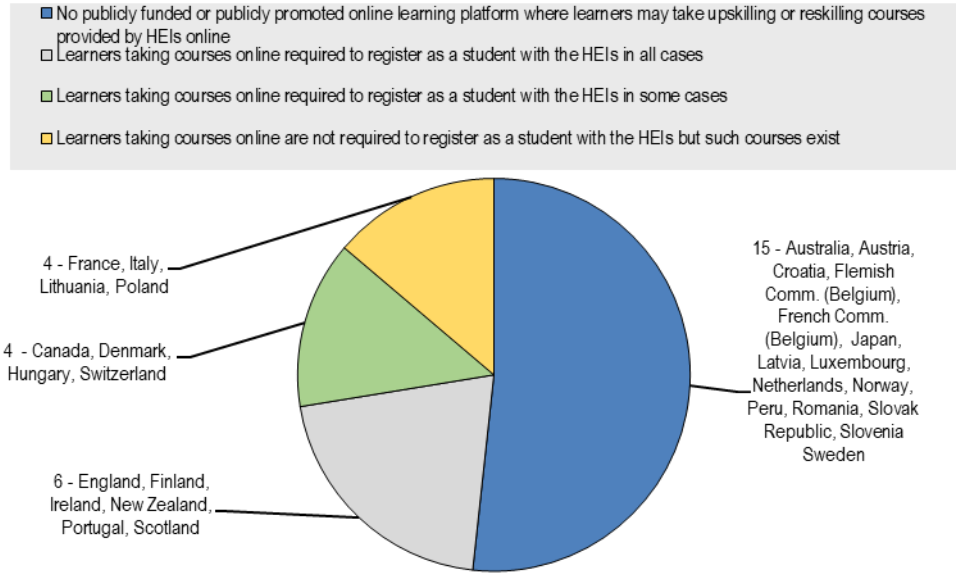
Notes: Total jurisdictions responding = 29. French Comm. (Belgium) refers to the French Community of Belgium while Flemish Comm. (Belgium) refers to the Flemish Community of Belgium. In Canada, responses provided in the figure may be applicable to some provinces and territories only. In Switzerland, 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.

Figure C.6. Conditions for higher education institutions to be eligible for public funding allocations, subsidised projects or incentive schemes to offer micro-credentials or similar short programmes



Notes: 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. In Canada, responses provided in the figure vary by provinces and territory. 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.

Figure C.7. Requirements to register within HEIs for students taking HEI provided online upskilling or reskilling courses on publicly funded or publicly promoted platforms



Notes: 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. In Canada, responses provided in the figure 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.

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

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