

BUILDING THE FUTURE OF SKILLS DEVELOPMENT THROUGH MICRO- CREDENTIALS



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Abstract

Micro-credentials are short, targeted learning activities that offer a way for learners to re-train and up-skill quickly and efficiently. This paper outlines core challenges that limit the effectiveness of micro-credentials and outlines actions that governments, training providers, employers and social partners can take to overcome these challenges. Maximising the potential offered by micro-credentials requires investing in quality assurance mechanisms, supporting outreach efforts and providing access to information about micro-credentials, facilitating integration with existing education frameworks, and making a commitment to data collection and evaluation. A high-quality micro-credential eco-system can help individuals and businesses react quickly to changes in demand for particular skills, which may be especially useful in fast-moving areas such as technology.

Table of contents

Acknowledgements	3
Abstract	4
Glossary	6
Introduction	7
Micro-credentials in the technology sector	9
Challenges limiting the effectiveness of micro-credentials	13
Lack of trust in micro-credentials calls for a need to invest in quality assurance	13
Better awareness of micro-credentials can support broader access and take-up	15
Integrating micro-credentials into the adult learning system remains a challenge	16
Limited data availability undermines evidence-based policies and programmes	17
Policy options to improve the micro-credential system	19
High-quality programmes foster greater trust in micro-credentials	19
Accessibility and awareness are key to wider participation	23
Integrating micro-credentials into adult learning systems facilitates recognition and expands learning pathways	27
An effective micro-credential eco-system must be underpinned by a commitment to collect data and evaluate programmes	29
References	31

Glossary

Certificate / diploma / title: Official document, issued by an awarding body, which records the learning outcomes (knowledge, know-how, information, values, skills, competences) of an individual following assessment against a predefined standard.

Digital badge: Validated graphical visualisation of a learning experience – e.g. participation in a course, seminar or workshop, or acquisition of knowledge, skills and competences – with or without certification.

Digital credential: In education and training, electronic, secured and verifiable statement issued by a competent authority (education or training provider, awarding body, professional organisation) describing a learning action, for example: activities (e.g. participation in a course, seminar or conference); achievements (e.g. learning outcomes, project); assessment criteria; professional entitlements (registration as a medical doctor, etc.); certification or qualification obtained.

Micro-credential: Record of the learning outcomes that a learner has acquired following a small unit of learning, and that have been assessed against a predefined standard.

National qualifications framework (NQF): Instrument for developing, classifying and issuing qualifications in a country according to a set of criteria for specified levels of learning achieved, which aims to integrate and coordinate national qualifications subsystems and improve the transparency, access, progression and quality of qualifications in relation to the labour market and civil society.

Partial qualification: Unit(s) of learning outcomes (knowledge, know-how, information, values, skills and competences) acquired by an individual, and which have been assessed and certified by a competent body against a predefined standard, but which does not lead to a full qualification.

Qualification: This term relates to a formal qualification, which is the formal outcome (certificate, diploma or title) of an assessment process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards. A qualification confers official recognition of the value of learning outcomes in the labour market and in education and training and reflects the competence to do a job in a specific area of work. A qualification can be a legal entitlement to practise a trade.¹

¹ Definitions in this glossary are derived from Cedefop, as found here: <https://www.cedefop.europa.eu/en/tools/vet-glossary/glossary> (accessed on 11/01/2024).

Introduction

Credentials are key to highlighting and signalling the skills that individuals have acquired over the course of their lifetimes. While traditional credentials include formal degrees and qualifications, micro-credentials have recently grown in popularity amongst adult learners looking to re- and up-skill quickly and efficiently. Micro-credentials are organised learning activities that award a credential upon completion, where a credential recognises a skill that has been acquired through this learning process and validated through an assessment (OECD, 2021^[1]; OECD, 2023^[2]). They are typically shorter in duration or workload, more targeted in terms of skills or subject matter, and more flexible in delivery than a traditional degree programme. Definitions of micro-credentials vary, but for the purpose of this paper, the term micro-credentials is used broadly to refer to all short, alternative learning opportunities including those that award certificates and digital badges.²

Well-designed micro-credentials can enable learners to re-train and up-skill quickly and efficiently. Hence, they have a valuable role to play in keeping up with the rapid pace of change in skill needs. Their modular and targeted nature means that learners can fill specific knowledge gaps or address particular skills shortages in a relatively short amount of time. This is especially useful in the technology sector where the speed of technological advancements requires workers to continually engage in skills development. Moreover, micro-credentials are often delivered in a flexible way, making them a particularly attractive training option for women and minority groups who often face high barriers to participating in training (OECD, 2023^[2]). In this way, micro-credentials can help boost the diversity of the workforce.

At the same time, there is much variation in the size and format of micro-credentials, in who offers them and who uses them, and crucially in the quality standards that underpin them. These divergences make it difficult for employers, learners, and providers to have confidence in the wide and varied micro-credential landscape and hinder them from tapping into their full potential. Challenges remain in ensuring trust in the micro-credential system. Training providers and governments should work to deliver higher-quality programmes that have been quality assured to facilitate improved recognition and take-up of micro-credentials. Greater awareness efforts and better data collection mechanisms can improve the understanding of and access to micro-credentials, especially amongst under-represented groups. Furthermore, better integration into broader adult learning systems supports transparency and facilitates the use of micro-credentials as complements to formal qualifications.

This paper describes the challenges limiting the effectiveness of the micro-credential system and provides a set of policy actions that countries, training providers, social partners and employers can take to address each of these challenges. It contains a particular focus on the state of micro-credentials in the technology sector. Nonetheless, the challenges and policy actions described are applicable more broadly. Furthermore, it is important to note that existing rigorous evidence on the nature of micro-credentials, especially in the technology sector, is limited and therefore future work should develop stronger data collection mechanisms to measure and evaluate micro-credentials and their outcomes.

² A glossary is provided on page 4 to help readers distinguish between different terms in this space.

Key policy messages

- Education and training providers should consider establishing internal minimum quality standards for micro-credentials, and, where possible, conduct their own quality assurance. Providers should regularly evaluate and audit their micro-credential offerings and update curricula when needed to ensure programmes remain high-quality and industry relevant.
- Governments should reflect on their quality assurance needs and consider adopting a hybrid approach of accrediting both programmes and providers.
- Social partners, employers and training providers can foster greater acceptance and recognition of micro-credentials by working together to design and deliver demand-driven programmes.
- Governments should support the creation of online platforms or marketplaces that allow prospective users to compare available micro-credentials across a common set of criteria. Training providers can support the work of governments by establishing their own micro-credential catalogues and contribute to national registries where possible.
- Governments should create a set of guidelines or minimum standards for training providers to encourage greater consistency of information and help providers in their course design. Education and training providers should follow these instructions when designing, describing and advertising programmes.
- Governments should consider expanding funding options, including through targeted subsidies and Individual Learning Accounts, to boost participation in training amongst vulnerable groups. Employers and social partners can also encourage workers to engage in training and provide financial support where possible.
- Governments can consider expanding National Qualifications Frameworks to cover the non-formal adult learning sector, and, where needed, integrate multiple frameworks into a single, holistic framework to support flexible learning pathways.
- Governments should better integrate micro-credentials into national validation of non-formal and informal learning systems to improve the recognition of prior learning acquired non-formally or informally.
- Training and education institutions should adapt their internal validation processes to ensure they are effectively assessing learning acquired through micro-credentials. Providers should reform their admissions policies to allow for alternate admissions pathways.
- Training and education institutions should consider modularising programmes and integrating micro-credentials into curricula to encourage the mindset that micro-credentials are complementary to more traditional degree programmes.
- Training providers should increase data collection efforts to better understand learner profiles and the impact of their programmes. Governments should work with providers, social partners, and academics to assess the effectiveness of programmes to better inform policymaking.
- Governments should adopt a clear and consistent definition of micro-credentials, following international standards where possible.

Micro-credentials in the technology sector

Micro-credentials are gradually playing a greater role in the technology sector, with a recent expansion of both the number of providers of micro-credentials and of micro-credentials programmes on the market. Credentials offered by the technology sector typically fall outside the scope of formal education and training systems but are nonetheless effective ways for learners to re-train and up-skill quickly. The fast pace of technological change, digitalisation and automation is increasingly shifting skill demands and creating new skills gaps for workers. Distinct from other sectors, the technology sector also faces many societal, environmental, and legislative changes, such as those arising from the rise in artificial intelligence, which in turn affect training requirements. As a result, when formal education programmes take too long or are too slow to match market needs, alternative credentials become an advantageous learning option. Curricula of short courses are also easier to update more frequently, to reflect new technologies and industry demands. This aligns with recent work from Canada which finds that while only about 3% of data scientists and software professionals report micro-credentials on their LinkedIn profile, those that do are more likely to list skills, tools and technologies that are more recent, such as machine learning (Dobbs, Abuallail and Lockhart, 2023^[3]). This suggests micro-credentials help learners upskill in more novel technologies and newer software.

Some large technology companies have developed micro-certificates available to the general public. For instance, Google, Microsoft and Amazon have established online platforms where learners can complete professional certificate programmes (see Box 1 for additional examples). Many of the courses offered in the ICT sector are suitable for beginners and for adults requiring a flexible learning schedule, making them particularly useful learning options for entry-level talent, career switchers or under-represented groups who struggle to participate in adult learning. Certificates offered by these large companies are generally highly valued by employers looking to hire technology workers, as they are seen as globally recognised achievements (Cedefop, 2022^[4]). This may not be the case for less well-known certificates or credentials offered by smaller providers, making it difficult for employers to trust the value of all micro-credentials equally – a challenge noted in the next section.

Technology companies are also using alternative credentials to train their internal workforce. IBM, Microsoft, and Adobe, for example, are actively using digital badges to train their workforce (Cedefop, 2022^[4]). Digital badges – web-enabled versions of a learner’s credentials that can be shared online – are also provided by Dell after an employee completes one of the company’s internal training programmes. Similarly, Microsoft provides IT courses and credentials to its employees through Udacity, an online learning platform. Furthermore, Deutsche Telekom has previously used massive open online courses to provide employees across its global operations with training in entrepreneurship, digitisation, and design thinking (Cedefop, 2022^[4]). More generally, employers looking to adopt a skills-based approach will need to increase their trust in alternative credentials to ensure their workers continually engage in training throughout their working lives.

Box 1. Micro-credentials delivered by technology companies can address market needs quickly

Google Career Certificates are professional courses that prepare learners for high-paying and high-growth jobs in fields such as cybersecurity, IT support, data analysis and UX design.³ No prior educational or work experience is required to start a professional certificate. The training is available on Coursera. Learners can follow the online programme at their own pace, making it a flexible learning option available for all, with course workloads varying between 110 to 200 hours.

IBM's SkillsBuild programme allows learners to earn free digital credentials from IBM and their partners, with many courses lasting only a few hours and offered in multiple languages.⁴ Courses are free and span fields such as cybersecurity, data, IT project management and web development. Each digital badge showcases proficiency in a niche skill, allowing employers to identify workers with specific abilities or knowledge areas.

Established in 2018, Microsoft Learn is an online platform offering a wide range of resources for individuals looking to develop their skills and expertise in Microsoft technologies. It provides interactive tutorials, hands-on labs, learning paths, and certifications across various Microsoft products and services, including Azure, Office 365, Power Platform, Dynamics 365, and more. While some courses may require a fee for certification exams or premium content, the majority of the learning resources are available at no cost. The platform caters to learners of all levels, from beginners to advanced professionals, with self-paced learning options and guidance from Microsoft experts. Microsoft Learn aims to empower individuals to acquire in-demand skills, advance their careers, and stay updated with the latest technologies in the Microsoft eco-system.⁵

The French telecommunications company Orange created an e-learning platform called Orange Campus which offers employees courses on data/AI, cybersecurity, management, and soft skills. Participants can take basic or advanced modules and gain specialised expertise leading to a certification or diploma. More generally, Orange intends to strengthen its expertise in technology – over the next five years, it aims to double the number of experts working in several key areas of its business, including network virtualisation, cloud, data analysis, artificial intelligence, coding, and cybersecurity. Moreover, to help build a technology talent pipeline and support digital skills development across Europe more broadly, Orange Campus is also available to external users. In particular, the company has partnered with Microsoft AI school, along with Simplon and the Grande Ecole du Numérique, to deliver work-related skills training (Orange Newsroom, 2020^[5]).

To complement the work of individual training providers, many governments provide free or low-cost digital skills training. This is done to ensure populations have at least a basic digital literacy level. Publicly funded, accessible digital skills training is especially beneficial for vulnerable and under-represented groups, who may be more likely to have very low levels of existing digital skills deriving from the digital divide in their access to IT infrastructure and internet (UNESCO, 2023^[6]). Furthermore, the outcome of many of these programmes is often an accredited certificate, which helps to signal to potential employers the acquisition of these skills. Basic digital upskilling also supports the eventual entry of more workers into specialised technology fields. Box 2 provides examples of government-funded certification of digital skills.

³ More information on Google Career Certificates is available at the following link: <https://grow.google/intl/europe/google-career-certificates/> (accessed on 05/01/2024).

⁴ IBM's SkillsBuild programme can be accessed here: <https://skillsbuild.org/> (accessed on 05/01/2024).

⁵ Microsoft Learn can be accessed here: <https://learn.microsoft.com/en-us/> (accessed on 13/02/2024).

Box 2. Digital skills certification across Europe

Between December 2016 and July 2018, 7.4 million digital skills trainings were provided and 1.9 million certifications were delivered as part of the European Union's Digital Skills and Jobs Coalition. Members of the Coalition spanned business, social partners, education and training providers and civil society organisations across Europe. Amongst others, organisations which provided certifications included ECDL Certifications, Microsoft and Certiport, with some organisations even offering learners job placements or internships. From this, national and regional coalitions across European countries have been established to continue promoting and delivering digital skills training. Many coalitions bring together partners across different levels of society, including ICT companies, and collaborate to deliver industry-led training, certify skills, and raise awareness about ICT careers (Europa, 2018^[7]).

The European Commission is currently exploring the creation of a European Digital Skills Certificate (EDSC) as a quality label. Currently in pilot phase, the EDSC would put forward an agreed set of quality requirements, alongside facilitating the quick and easy recognition of digital skills by employers, training providers and other stakeholders. The certificate will be based on the European Digital Competence Framework, helping to provide a common understanding of digital competence. The scheme will be complementary to existing national or international digital skills certification schemes.⁶

Digital SkillUp is a European Union-funded initiative delivering short online courses in 10 European languages.⁷ Their goal is to make basic knowledge of emerging technologies available and accessible to all European citizens and small businesses. The courses are self-paced and mobile-friendly and provide a certificate of completion for students who pass the course.

At a country level, a range of free, accredited courses are available in Northern Ireland through SKILL UP.⁸ The short courses are delivered online by local education providers and are open for students from all levels. Courses are linked to priority economic sectors and deliver training in areas identified by industry where high job growth is expected, including in digital skills and green technologies. Likewise, in the United Kingdom, free qualifications are available for adults with low digital skills, under a statutory digital entitlement which has been in-place since August 2020.⁹ The entitlement provides cost-free study for UK residents aged 19 years or older who have very low essential digital skills, as assessed by education and training providers. In France, Pix is a public online service for assessing, developing, and certifying digital skills.¹⁰ Users can test their level across five areas from the European Digital Competence Framework.¹¹ Official certification is available after passing a test for each skill and level.

⁶ More information on the EDSC can be found here:

https://ec.europa.eu/commission/presscorner/detail/en/ip_23_2246 and here: <https://education.ec.europa.eu/focus-topics/digital-education/action-plan/action-9> (accessed on 11/01/2024).

⁷ The Digital SkillUp website can be found here: <https://www.digitalskillup.eu/> (accessed on 05/01/2024).

⁸ More information on Northern Ireland's SKILL UP programme can be found here: <https://www.nidirect.gov.uk/skillup> (accessed on 05/01/2024).

⁹ A description of the UK's statutory digital entitlement including who is eligible and further links to the qualifications approved for funding can be accessed here: <https://www.gov.uk/guidance/free-qualifications-for-adults-with-low-digital-skills> (accessed on 05/01/2024).

¹⁰ The Pix website can be accessed here: <https://pix.fr/> (accessed on 08/01/2024).

¹¹ More information on the framework can be found here: https://joint-research-centre.ec.europa.eu/digcomp/digcomp-framework_en (accessed on 08/01/2024).

Often training providers design and deliver learning opportunities in partnership with other stakeholders including industry leaders, associations, and the business sector. In a recent survey, Cedefop found that 14% of VET providers had their micro-credentials delivered by or in partnership with a big technology company like Google or Microsoft (Cedefop, 2022^[4]). Besides technology companies, VET providers also commonly partnered with formally recognised education and training providers, employers' organisations and private accredited providers. Outside the formal training sector, many employer organisations (25%) and some employee organisations (7%) also report partnering with big technology companies in the delivering of micro-credentials (Cedefop, 2022^[4]). These public-private collaborations can fast-track the design and development of micro-credentials, helping providers deliver more relevant programmes. Box 3 provides some examples of collaborative, cross-sector efforts in the technology space.

Box 3. Private-public sector collaboration fast-tracks the development of industry-relevant credentials

Some colleges and universities are collaborating with industry to design micro-credential programmes that are up to date with industry needs. In 2021, the University of Ottawa in Canada collaborated with FXInnovation, a provider of advanced IT training, to launch a pilot programme called CloudCampus. When it was first launched as a pilot, the programme started with a seven-week micro-credential course which focused on developing cloud skills that are highly sought after by industry. After completion, students receive a certificate to show they are qualified in cloud skills. The programme is an example of how the business sector can work with the educational sector to curate relevant training to better prepare workers for a role in the technology sector (Bharti, 2021^[8]).

IBM was one of the first companies to have partnered with a higher education institution, in the delivery of their digital badge programme. Northeastern University in the United States recognises IBM digital badge credentials and learners can use their badges as credit for a graduate degree programme or certificate. As of 2017, more than half of IBM's badges had been matched to programmes in Northeastern University's academic portfolio. In this way, IBM establishes itself as a leader in integrating learning in the workplace and shows how collaborating with the university sector can expand learning pathways (Northeastern Global News, 2017^[9]).

Other companies have worked in partnership with training providers to deliver alternative learning opportunities. For instance, the learning provider Udacity has developed its 'nanodegrees' in partnership with companies such as Facebook, Google, AT&T, Cloudera and Salesforce. Collaborating with well-known companies in the technology sector provides Udacity's credential programmes with greater industry backing. Through industry collaboration, curriculums also remain highly relevant, and programmes deliver in-demand skills (Shen, 2014^[10]).

Technology companies have also built relationships directly with the final users and their communities without the involvement of the traditional education and training sector. The Amazon Web Services re/Start initiative provides 12-week, full-time courses leading to certifications in cloud computing to unemployed and under-represented populations.¹² Learners can take an Amazon Web Services Certification exam to receive certification for their skills. The initiative is active in 11 countries (Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Switzerland, the Netherlands, Spain, and the United Kingdom) and is delivered in collaboration with a range of national stakeholders and non-profits, such as youth associations and skills development organisations. The programmes are free to the learner and focus on teaching the technical skills required to entry and mid-level roles in cloud computing. The initiative also connects learners with employers and prepares them for the workplace through resume and interview coaching (Cedefop, 2022^[4]).

¹² More information can be found here: <https://aws.amazon.com/training/restart/> (accessed on 05/01/2024).

Challenges limiting the effectiveness of micro-credentials

Lack of trust in micro-credentials calls for a need to invest in quality assurance

Trust by employers and learners in micro-credentials is one of the most important factors underpinning the quality and integrity of the system. A lack of trust indicates a greater need to invest in quality assurance mechanisms. Significant variation in the quality of existing micro-credentials raises questions related to labour market relevance, usefulness, and value. In the technology sector, for instance, the rapid evolution of technologies and skill needs requires that micro-credentials remain up-to-date and relevant. However, due to differences in quality and the lack of agreed standards, not all micro-credentials meet these requirements. Such large heterogeneity often results in scepticism amongst learners and employers about the real-world value of these credentials.

These issues are also compounded by the sheer quantity of courses and providers on the market which can pose challenges to quality assurance. Micro-credentials are increasingly offered by a broad range of providers including industry bodies, private training providers and commercial companies. In Denmark, for instance, many private providers offer credentials that are not quality assured by a public agency due to limited capacities and resources, leading to the mushrooming of credentials on the market (Cedefop, 2022^[4]). A similar situation is also observed in Ireland. While having a large variety of offers can provide several advantages, flooding the market and increasing confusion amongst learners is a particular concern in the technology sector, where a significant number of providers appear to offer technology-related credentials.

A recent survey of stakeholders representing employees, students and adult learners shows that trust is subject to factors such as specific characteristics of the micro-credential, reputation and credibility of the issuing body, and the status of formal recognition of the micro-credential by the relevant authorities. According to surveyed participants, the credibility of micro-credentials and of providers, along with their labour market relevance were identified as the most important drivers of trust in micro-credentials. In addition, respondents highlighted the importance of having adequate quality assurance mechanisms in place (Cedefop, 2023^[11]). Likewise, when developing the UNESCO definition of micro-credentials, all experts involved in the process agreed that quality assurance is essential (UNESCO, 2022^[12]). Moreover, the European Union Council Recommendation on micro-credentials indicates that quality assurance is a key element of trust (Council of the European Union, 2022^[13]).

Moreover, a recent survey across the European higher education sector found that about half of surveyed organisations (mostly higher education authorities and quality assurance bodies) rely on internal quality assurance arrangements, and even this is not done so on a consistent basis. A significant share of European countries currently has no quality assurance mechanisms for micro-credentials offered in the higher education sector, with only 16% of organisations currently conducting quality assurance and another

13% developing approaches to do so in the future (ENQA, 2023^[14]). Furthermore, almost one-quarter of respondents do not know when they will start to quality assure micro-credentials. This reflects widespread uncertainty surrounding quality assurance of micro-credentials, undermining trust in the system.

Establishing quality assurance mechanisms or improving the applicability of the existing mechanisms to micro-credentials would involve defining clear standards, regular monitoring and evaluation of programmes, and ensuring transparency in the outcomes of micro-credentials. Quality assurance is critical not only for protecting learners from investing in sub-par educational products but also for building employers' trust in micro-credentials as valid representations of skills and knowledge. A recent study shows that employers usually have greater trust in accredited learning programmes; however, they often accept non-accredited certificates especially if they signal some specific knowledge, skills, and proficiencies (Cedefop, 2022^[4]). Social partners also state that they are more likely to accept and trust micro-credentials if standards are set around delivery mode, assessment procedure, and duration (ETUCE and ETUC, 2020^[15]).

Quality assurance for micro-credentials is not only about maintaining high standards but also about ensuring that these credentials are relevant to the job market and aligned with the needs of employers. It is essential to engage various stakeholders, including social partners, in the design and delivery of micro-credentials to ensure their relevance and effectiveness. The end goal is to make micro-credentials a reliable and recognised tool for up-to-date, quality and industry-relevant learning, accessible to a broader segment of the population.

Furthermore, a lack of trust in micro-credentials means that employers are less likely to recognise their true value. Overlooking workers who have been trained through alternative pathways limits the pool of potential candidates from which employers can hire, making the implementation of skills-based approaches more difficult. When the adult learning system invests in the quality and transparency of micro-credentials, employers are more likely to recognise skills developed via alternative credentials during hiring and value micro-credentials as complements to traditional degrees and diplomas.

The landscape of quality assurance systems in non-formal adult learning varies considerably across OECD countries (OECD, 2021^[16]). Three approaches stand out in particular:

1. The regulatory approach which imposes minimum quality requirements that providers need to meet in order to be allowed to operate or access public funds;
2. The advisory approach which uses guidelines and examples of good practices to inspire providers engaging in quality development efforts;
3. The organic approach which leaves it completely to providers to define their own quality needs.

Depending on country-specific implementation features and governance structures, each approach offers different benefits to the quality provision of non-formal adult learning. Regulation is not always possible or desirable, with many countries currently choosing the advisory or organic approach. The challenge going forward is for countries to identify the type of approach that best suits their market and needs. Many countries moving forward will need to review and adapt their existing mechanisms and approaches to enable and maintain high quality micro-credentials. OECD evidence suggests the importance of establishing a wide and holistic approach, where typical quality assurance tools – such as certifications and evaluations – are complemented with additional support structures such as the validation of prior learning and lifelong guidance and the involvement of social partners.

Better awareness of micro-credentials can support broader access and take-up

Improving access to accurate and reliable information on micro-credentials can help learners compare options and make better, more informed decisions that impact their learning and career pathways. Lack of awareness in general remains a significant obstacle to more widespread adoption of micro-credentials – in one survey, nearly 60% of respondents were unfamiliar with micro-credentials, with this share rising to nearly 70% for unemployed individuals (Cedefop, 2022^[4]). A fragmented micro-credential system in many OECD countries, with many providers and courses on the market, makes it difficult for learners to assess the available options. Courses are advertised on different platforms, usually on the different providers' websites, and the relative benefit of providers and offerings is unknown. Centralised, micro-credential “marketplaces” or hubs are in limited use across countries – this is often because these platforms first require a significant data collection exercise. Greater efforts to gather data on course offerings and centralise this data by displaying offerings for example on a digital platform could greatly improve learner experience.

Particular groups in society may find outreach and awareness efforts especially beneficial to improve their understanding of the benefits of micro-credentials and the available offerings. Engaging under-represented groups can ultimately improve the diversity of learners participating in adult training. Data from the OECD Survey of Adult Skills indicate that many adults wish to participate in learning but are unable to due to a range of barriers. A lack of time – either due to work or family pressures – is reported as the biggest barrier to adult learning across the board (OECD, 2023^[2]). Particular groups may be more likely to report time as a barrier, including women who on average face higher childcare and family responsibilities when compared to men. Shorter learning options such as micro-credentials can support flexible learning and improve participation in training especially amongst diverse learners.

Micro-credentials are a particularly attractive option to boost flexibility in adult learning provision due to their speed and portability, their targeted, low-risk and personalised nature, and their ability to sometimes be stacked with other courses (OECD, 2023^[2]). Many modern learners prefer flexible learning pathways, with interest in studying flexibly continuing to increase, particularly in the aftermath of the COVID-19 pandemic. Flexible modes of learning such as blended or online learning can also be more appealing to diverse learners, particularly students with multiple commitments, who live far away or have specific learning requirements (McKenna et al., 2020^[17]). Micro-credentials have a range of flexible learning elements and can thus be a key tool in boosting participation in adult learning. Importantly however, under-represented groups need to understand these benefits of micro-credentials and must be first aware of their flexible nature. Greater outreach and communication efforts are required to ensure all groups in society are aware of the flexible and accessible nature of micro-credentials.

Funding is also an important consideration for countries looking to boost the accessibility of micro-credentials. Many micro-credentials, particularly those related to the technology sector, are offered by the private sector, and are thus not subject to public funding. Even micro-credentials developed by higher education institutions generally require paying a fee that is not subsidised, except by the participant's employer. Micro-credentials also do not attract public funding as they are often not nationally accredited or registered as a recognised learning opportunity. Integrating micro-credentials into broader learning systems (see below) and quality assuring them can facilitate public funding and thus ease the financial burden on learners. Moreover, employers can be incentivised to provide greater financial support to their workers who wish to engage in training. Ultimately, improved financial arrangements will especially benefit low-wage and low-skilled participants, groups who are the most likely to benefit from micro-credentials.

Integrating micro-credentials into the adult learning system remains a challenge

Integrating micro-credentials into the existing adult learning system presents several challenges, primarily revolving around the recognition and equivalence of these credentials alongside traditional qualifications. To understand how micro-credentials can be better integrated into the broader learning environment, each programme first needs to transparently state its learning outcomes and intended target skills. Currently, there is no consistency even at national level on which information is required when advertising programmes. A common understanding of the level of knowledge and skills that a micro-credential represents would help learners choose the programme that best suits their needs.

Integrating micro-credentials into the broader system may require linking them to National Qualifications Frameworks (NQFs) – hierarchical classifications by which countries organise, recognise, and assign value to qualifications. NQFs usually assign levels (and sometimes credit points) based on learning outcomes to each qualification in the hierarchy (Cedefop, 2017^[18]; OECD, 2023^[2]). To link micro-credentials to NQFs, an understanding of the credit point value of micro-credentials is required. By specifying credit point values and listing micro-credentials on NQFs learners can more easily understand potential learning pathways after obtaining a micro-credential and reduce uncertainty in course combinations when stacking programmes. Training and education providers will be more likely to recognise the value of micro-credentials and credit learning towards more complex, traditional degrees if the relationship between micro-credentials and other degrees is made clearer. By integrating micro-credentials into the overall learning system, micro-credentials can better complement formal qualifications, and facilitate an easier transition of learners from vocational to higher education (UNESCO, 2022^[12]). Nonetheless, linking micro-credentials to NQFs is not always possible as some countries do not have an NQF or have one that covers only part of the education system (UNESCO, 2023^[6]).

Another challenging aspect of integrating micro-credentials in the national adult learning framework is how micro-credentials relate to the Validation of non-formal and informal learning (VNFIL) system. Indeed, micro-credentials can themselves be an outcome of VNFIL processes – that is, bodies who conduct VNFIL can choose to award a credential such as a micro-credential to properly validate and recognise the skills acquired by a learner through experience or non-formal learning. This then helps learners better signal their skills to employers or work towards a more traditional qualification, reducing the time and cost of future training.

Practically, integrating micro-credentials into existing educational systems involves modifying administrative and academic processes. This modification might include adapting credit systems to recognise micro-credentials as part of degree pathways, developing new assessment and accreditation methods, and updating curricular frameworks to include or align with micro-credentials. Education and training providers may also need to adapt their internal validation processes to ensure they are effectively assessing the equivalency of micro-credentials. Another challenge going forward will be how higher education and VET bodies integrate micro-credentials into their traditional programme offerings (OECD, 2021^[19]). While it is important to note that not every combination of short courses and micro-credentials should automatically lead to a degree, learners could be informed about course and degree prerequisites and guided towards the most viable combinations.

Concerns have been raised about whether micro-credentials should serve as complements to or replacements for traditional qualifications. Social partners in particular have voiced concern that micro-credentials may undermine established VET and higher education systems by replacing formal qualifications. For instance, in a joint statement, the European Trade Union Confederation and the European Trade Union Committee for Education note that an overreliance on shorter courses like micro-credentials reduces the labour market need for full qualifications. Education is also a public good and, in many countries, higher education is provided to citizens at low or zero costs. Trade unions express that the need to pay for privately delivered micro-credentials may reduce this inherent right to education (ETUCE and ETUC, 2020^[15]). Higher education providers across the OECD also support this stance,

viewing micro-credentials as valuable complements to – but not substitutes for – traditional degree programmes (OECD, 2021^[19]). Therefore, greater transparency around how micro-credentials relate to other qualifications and clarity on how they may interact with the broader learning environment may help negate some of these concerns.

Limited data availability undermines evidence-based policies and programmes

The micro-credential system is marked by a wide range of users, providers and programmes, complicating data collection, analysis, and policymaking efforts. From higher education institutions offering online courses to private organisations providing specialised training, the landscape is varied. Each provider has different standards, course structures, and evaluation criteria, making it challenging to gather consistent, reliable, and comprehensive data on micro-credentials. This diversity, whilst enriching the eco-system and providing learners with choice, poses significant difficulties in evaluating the effectiveness, outreach, and impact of micro-credentials on a larger scale (Cedefop, 2022^[4]).

Lack of evidence on the outcomes and impact of micro-credentials prevents governments from making informed decisions and investments that deliver value for money including on subsidising micro-credentials and whether and how to recognise their credits in formal education. They also prevent learners and employers from assessing and comparing the quality and effectiveness of various micro-credential programmes. Robust data are essential to guide policymakers towards effective and efficient programmes by revealing what works and what does not and to change course when results are sub-optimal. Information on the evaluation of micro-credentials would also benefit firms and learners themselves by helping them understand which programmes are worth their time or the time of their employees. For providers, evaluation can enable them to design micro-credentials in a way that would maximise their impact and attract new learners.

In the absence of a standardised regulatory framework, there is a notable variability in quality and transparency of micro-credentials. This means that not all micro-credentials are of equal quality; some may offer substantial learning and skill development, while others might provide little real value. Without sound data and evidence, these discrepancies remain unmeasured and unaddressed, and therefore undermine the potential of micro-credentials to facilitate flexible learning and career pathways.

Moreover, unregulated micro-credentials in many countries add to the complexity of collecting robust data and evidence on the take-up rates of micro-credentials. Limited data on take-up rates make it difficult for providers and governments to understand the recipients of micro-credentials and track changes in their outcomes. While some studies indicate that shorter programmes do provide at least a temporary labour-market boost, and stacking micro-credentials may improve prospects in the labour market, evidence on the outcomes of micro-credentials is limited and demands further research (OECD, 2021^[1]). Improved data collection on learner outcomes post-study – such as on employment status, income levels or career advancement – could improve understanding of the value of programmes.

In addition, data collection surrounding enrolments and completions disaggregated by socio-demographic characteristics such as age, gender, income, and disability would help providers, employers, and policymakers better understand the barriers to accessing micro-credentials. Evidence shows that only four in ten adults across the OECD participate in education and training in any given year, and these numbers are even lower for vulnerable groups, including the low-skilled, older adults and non-native speakers (OECD, 2019^[20]). Micro-credentials have the potential to enable vulnerable and under-represented groups to participate in training by reducing constraints and offering a flexible learning option. In this context, micro-credentials could play a pivotal role to achieve the EU target of reaching 60% of adults participating in training every year by 2030 through enabling learners to update or complete their skill sets in a more flexible and targeted way.

Moreover, a recent study shows that the main recipients of micro-credentials provided by organisations representing employees and employers are usually individuals employed in the organisation's own sector (Cedefop, 2022^[4]). This implies that these offerings are more likely to reach those already employed in the sector, possibly overlooking the most vulnerable or disadvantaged learners who are outside these sectors, or workers looking to transition into a new sector. Therefore, better data collection on the diversity of the recipients of micro-credentials could help reveal existing barriers. This data could also underpin more targeted outreach efforts such that training providers can better serve under-represented groups.

Establishing evidence-based micro-credential programmes also relies upon the adoption of a consistent definition of micro-credentials across stakeholders. A lack of a commonly agreed upon definition both within and across many OECD countries makes it difficult for stakeholders to collect data and evaluate the impact of programmes. Uncertainty surrounding definitions can even contribute to confusion at national government levels, with almost one-quarter of national authorities not knowing whether micro-credentials were used in their national context in a recent survey (Cedefop, 2022^[4]).

Policy options to improve the micro-credential system

High-quality programmes foster greater trust in micro-credentials

To support the development of successful and trustworthy micro-credential programmes, institutions should reflect on their quality assurance needs and decide on the quality frameworks that best suit their specific governance and market needs. While some stakeholders believe that non-formal qualifications like micro-credentials should not be over-regulated – in order to ensure that courses remain adaptable to changing skills needs – boosting trust in the system may require integrating micro-credentials (at least partially) into the broader learning environment – and doing so may require the development of some formal quality assurance mechanisms. Countries will need to strike a careful balance between regulation and flexibility, such that there is sufficient quality assured to inspire trust in the system but that providers are still given enough flexibility to develop relevant programmes. Ultimately, each country should decide on the appropriate level of prescriptiveness in the quality assurance of micro-credentials (ENQA, 2023^[14]).

On the more regulatory side, countries could establish minimum standards for programmes at the national or sub-national level and courses can be assessed against these benchmarks, with a central body responsible for providing accreditation. However, accrediting each single programme is relatively burdensome, especially for learning institutions offering numerous courses, and could thus limit the speed at which courses can be designed and delivered to learners. Alternatively, countries can accredit providers only, and leave the individual institutions to conduct their own internal quality checks of each programme. This ensures institutions themselves are of high-quality and that they meet minimum teaching standards but cannot guarantee the quality of each programme. The European Union Recommendation on micro-credentials supports this second approach, with its emphasis on the external quality assurance of providers, allowing providers' internal quality assurance mechanisms to determine quality of courses.

Countries can also consider adopting a hybrid approach adopting both programme and institutional level accreditation. For instance, in Ireland and New Zealand, institutional level quality assurance is conducted only for the university sector, while programme level accreditation applies elsewhere. In such contexts, learning institutions with institutional-level accreditation should ensure that enough efforts are conducted to undertake an internal evaluation and quality assurance of their micro-credential non-formal offerings. Box 4 provides examples of countries implementing the two approaches – accrediting programmes and accrediting providers.

Box 4. Countries can decide between accrediting programmes or accrediting providers

Accrediting programmes

In New Zealand, the national accreditation and recognition of micro-credentials follows a structured process overseen by the New Zealand Qualifications Authority (NZQA). Micro-credentials undergo a thorough assessment to ensure they meet the required quality standards and criteria, mirroring the rigorous accreditation process employed for other, more formal education opportunities. This process includes a comprehensive review of the content, delivery methods, assessment practices, and outcomes of the micro-credential, ensuring alignment with industry standards and addressing identified skill needs. Once a micro-credential successfully meets the necessary criteria, it undergoes approval and registration by NZQA, granting it official recognition and credibility within the New Zealand education and training landscape. This standardised accreditation process underscores NZQA's commitment to upholding consistent quality standards across all forms of education and training, reinforcing the integrity and reliability of micro-credentials as valuable learning pathways for individuals and stakeholders alike. Additionally, micro-credentials that have been quality assured by NZQA must be delivered by accredited education and training providers – in this way, New Zealand has a system of both accrediting providers and individual courses.¹³

Slovakia is another example of a country which goes beyond institutional accreditation with its system of accrediting non-formal qualifications, including micro-credentials. Under this system, providers can decide whether to accredit a programme as a whole or by module. According to the accreditation requirements of the Ministry of Education, modules are designed as independent learning units. Therefore, some of these modules meet the criteria for awarding micro-credentials. Providers that are interested in accreditation are advised to follow qualification standards as set out in Slovakia's NQF and are required to submit certain documents when applying for programme certification. Quality-checked programmes are added to a publicly available register of accredited courses, improving visibility and understanding of programme quality. The official register serves to boost awareness of micro-credential offerings and helps to build trust amongst users and stakeholders. Furthermore, a new lifelong learning and counselling strategy adopted in 2021 aims to include accredited qualifications into the NQF as micro-qualifications, an effort which could bring micro-credentials into the formal learning system (Cedefop, 2023^[21]).

Accrediting providers

Many European countries have made provider certification and quality labels compulsory in order to receive public funding (OECD, 2021^[16]). Hence, the practice of accrediting providers is currently more common. Switzerland's long-standing eduQwa certification framework gives adult learning providers a quality label if they meet minimum standards. The eduQwa label certifies the entire institution, not its individual courses. Yearly intermediate audits are conducted, and certification lasts three years after which renewal is necessary. The quality label provides institutions with recognition and credibility, allowing them to remain competitive in the education and training market. The system is well-trusted and managed by a central Swiss body which defines the criteria that evaluating bodies use to measure quality of providers. Standards are in a publicly available manual which defines in detail why the standard has been selected, indicators that can be used to evaluate the standard, and any documents

¹³ More information on accreditation rules for micro-credentials in New Zealand can be found here: <https://www2.nzqa.govt.nz/about-us/rules-fees-policies/nzqa-rules/qualification-and-micro-credentials/> (accessed on 13/02/2024).

needed for certification processes or audits. These evaluation guidelines are clear, transparent, and detailed – they allow different certification agencies to use the same standards to evaluate providers.

France similarly uses a quality label system for professional education providers, including micro-credential providers, called Qualiopi. External quality assurance evaluators, certified by the French Accreditation Committee, are responsible for granting the quality label. During the initial application phase, certifying bodies conduct on-site audits to ensure that providers meet national quality standards and effectively implement them. Subsequent inspections occur one year later to maintain compliance. Non-compliance may lead to suspension or withdrawal of the label. Furthermore, upon expiration of the Qualiopi label after three years, providers undergo a new on-site audit to renew certification for another three years. The existence of a nation-wide and officially recognised label does not only foster trust among learners but also instils confidence in employers. Furthermore, outsourcing and distributing the quality assurance evaluation of the micro-credentials to external partners prevents an overburdening of the national accreditation system and thus allows for a steady flow of newly accredited courses.¹⁴

Programmes that are designed with standards in mind are more likely to be transparent about their intended learning outcomes and thus are more likely to provide clarification regarding the information conveyed about micro-credentials. Stakeholders – in particular, employers and credit-awarding education institutions – are more likely to recognise learning completed via a micro-credential if standards clearly indicate the learning outcomes achieved. First, training providers can be more precise in their description and advertisement of courses to clarify intended learning outcomes for prospective learners. Furthermore, national authorities could work towards producing a set of guidelines that training providers can follow when advertising their courses, to encourage greater consistency of the type of information that is required. Australia for example has established a set of minimum standards for micro-credentials (see Box 5). Whilst not binding, these standards must be observed by providers to be able to issue offerings on the Microcredentials Marketplace (more information on the Marketplace is provided further below).

Box 5. Setting minimum standards makes information more transparent

Australia has established a set of minimum standards in their National Microcredentials Framework. It stipulates essential and recommended criteria, guiding providers in the design of programmes (Department of Education, Skills and Employment, 2021^[22]). The framework also helps learners make more informed decisions when choosing micro-credentials. The minimum information required for all micro-credentials include: Title; Provider; Content/description; Learning outcomes; Language; Delivery mode; Date of delivery; Learner effort; Inherent requirements; Price and financial assistance; Assessment; Certification; Credit/other recognition; Quality assurance; and Prerequisite/s. Alongside these essential standards, a list of recommended elements are also noted, which constitute information that may assist a learner in navigating the credential. Furthermore, alternative providers must publish a “statement of assurance of quality” when they wish to list their programmes on the Microcredentials Marketplace. This statement includes the profile of the provider, a description of the quality assurance process undertaken, and the process for reviewing or updating the micro-credential.

The standards outlined in Australia are similar to those recommended by the Council of the European Union in its recent recommendation on micro-credentials. This document similarly contains a list of mandatory and optional elements to be used when describing a micro-credential. These European

¹⁴ More information on the Qualiopi system in France can be found here: <https://travail-emploi.gouv.fr/formation-professionnelle/acteurs-cadre-et-qualite-de-la-formation-professionnelle/article/qualiopi-marque-de-certification-qualite-des-prestataires-de-formation> (accessed on 13/02/2024).

standard elements are designed to ensure the consistency of information for all stakeholders. Member States are encouraged to establish their own national standards in line with this Recommendation (Council of the European Union, 2022^[13]).

Countries can alternatively implement “softer”, non-regulatory approaches to quality assurance, primarily through external evaluations and audits. A quality culture can also be fostered through quality awards and prizes. In Finland, for instance, the Ministry of Education and Culture organises a yearly quality award competition for adult education providers with the objective of encouraging learning centres to assess and continuously improve the quality of their activities. The quality award recognises the quality of services, based on performance against predefined criteria determined by an expert committee appointed by the Ministry (OECD, 2021^[16]).

Another way trust can be fostered is through the development of industry-relevant, employer-backed programmes. Training providers can work with both social partners and employers to design demand-driven programmes. In Denmark, for example, the employer organisation TEKNIQ, alongside the Trade Union for Electricians and the Trade Union of Plumbers and Allied Workers, actively collaborated with public employment services to craft two micro-credential programmes (Cedefop, 2023^[11]). The joint effort aimed at enriching the skill sets of long-term unemployed and low-qualified individuals, by equipping them with abilities to become cable and pipe fitters. This collaborative initiative is a direct response to the increasing demand for such skills, notably fuelled by the green transition movement. Similar collaborative efforts could be established in other countries for the technology sector.

Moreover, providers can also establish partnerships with employers by offering learners work placement in partner firms upon completion of or during studies. This type of on-the-job experience provides students with real-world practice and complements the more traditional learning they would have gained during the micro-credential. The security of employment and income post-training also may particularly attract vulnerable groups like the low-income or low-skilled into micro-credential programmes. Box 6 provides an example of such a collaboration in the technology sector.

Box 6. Private sector collaboration can boost employer support in programmes

The Cisco Networking Academy offers courses covering a wide range of technology-related topics such as cybersecurity, programming, and Internet of Things (IoT). The courses, characterised by varying lengths, delivery methods, and language options, accommodate diverse proficiency levels. While self-paced courses on NetAcad.com are offered free of charge, the cost of instructor-led classes is determined by individual institutions. Upon successfully completing a course, participants are awarded digital badges and certificates, validating the knowledge and skills they have acquired. With a global presence spanning 190 countries, the Academy has already impacted over 20.5 million individuals since its inception in 1997, and internal survey data finds that 95% of students who took a Cisco certification aligned course between 2005 and 2022 obtained a job and/or a new educational opportunity post-completion.¹⁵ Cisco directly supports learners in finding employment opportunities in the technology sector by connecting students with its network of partner employers. The Talent Bridge programme is an employment programme which connects learners with Cisco’s eco-system of partners who are looking to hire qualified technology professionals. Cisco supports learners with a career preparation

¹⁵ More information on Cisco’s Networking Academy can be found here: <https://www.netacad.com/> (accessed on 13/02/2024).

workshop, an alumni network and career advice.¹⁶ Moreover, Cisco collaborates with the public sector to ensure they deliver trustworthy and industry-relevant training to learners by offering Department of Labor certified apprenticeships.

Accessibility and awareness are key to wider participation

Education and training institutions have a pivotal role to play in spreading awareness and understanding of micro-credentials to facilitate broader take-up. An abundance of available micro-credential offerings and the sometimes-inconsistent language used to describe them may be overwhelming for learners. In this fragmented and expansive market, providers can facilitate easier access to information by publishing their offerings in a way that is consistent with national guidelines or minimum standards. Following common instructions helps providers advertise courses in a clear and consistent way, helping learners better compare and choose courses. Providers can also engage with existing national or international skills taxonomies – such as the European Skills, Competences and Occupations (ESCO) classification, the Occupational Information Network (O*NET) database, or the World Economic Forum’s Global Skills Taxonomy – to describe their micro-credential offerings using a consistent, well-recognised language. Other frameworks that have been established by the non-profit sector can also be engaged when describing and advertising courses, such as the one described in Box 7.

Box 7. A common language to describe credentials improves access to information

Credential Engine is a non-profit organisation based in the United States working to create a clear and consistent informational map of the credential landscape, to help learners find educational pathways. It collects and collates data on credentials from partner training providers into a cloud-based, freely available Credential Registry. The registry uses a common language, the Credential Transparency Description Language (CDTL), which was developed to provide a common language to describe all programmes in their database and thereby make it easier for learners, businesses, and researchers to discover and understand various credentials within a common and consistent schema. Furthermore, Credential Engine also operates a Credential Finder platform to help learners discover credentials available to them. Users can filter by credential type, geography, or focus area, and are provided with information on the provider, accreditation, time and financial costs, audience level, and delivery method of any given credential in the registry. This platform combined with Credential Engine’s common schema supports learner access to information expanding understanding.¹⁷

After describing their offerings in a consistent way, providers can work to collate and publish this information on centralised micro-credential marketplaces or hubs. Providers can work with the non-profit sector which has already made progress establishing online platforms (see Box 8). These digital platforms help learners access a broader range of offerings, across different providers, helping them compare and choose courses. Some of these platforms go beyond learning and provide ways to validate learners’ acquired skills, a particularly advantageous aspect for vulnerable groups who may already have existing skills but are less likely to have engaged in formal training. Complementing this effort by the non-profit sector, several countries have established national micro-credential platforms and registries to bring greater prominence and structure to the expanding micro-credential eco-system (Box 9). Governments

¹⁶ Cisco’s Talent Bridge programme can be found here: <https://www.netacad.com/careers/talent-bridge> (accessed on 13/02/2024).

¹⁷ Further information on Credential Engine is available here: <https://credentialengine.org/> (accessed on 19/02/2024).

have an important role to play to centralise the efforts of various providers. Training providers are encouraged to sign-up for these national registries and work with governments to place their offerings on these websites to help learners access a broader range of information on available courses. Finally, providers themselves can simplify their own websites especially regarding the accessibility of their content and language to ensure they are inclusive and easy to navigate.

Box 8. Digital platforms and awareness efforts in the non-profit sector support the work of providers and governments

Digital Promise is a global non-profit organisation that has built an eco-system of micro-credentials in partnership with training institutions to personalise professional learning. Its Credential Explorer lets users peruse and filter a large collection of education-focused micro-credentials using intuitive criteria such as the target audience for a credential (e.g., coaches, adult learners, policy makers) or a given topic of interest (e.g., STEM, financial literacy, disability). The user interface displays credentials as nodes in a web, highlighting complementarities between credentials associated with a particular topic and contributing to their stackability. Since 2023, Digital Promise has put together a Badging Coalition, where industry experts and practitioners are conceptualising the design of a new open-source badging solution, which will contribute to the recognition and transferability of users' learning.¹⁸

Alongside platforms, non-profit organisations can also be instigators of broader awareness efforts. The World Alliance for Micro-credentials is a soon-to-be launched collaborative initiative between European VET associations and experts in a variety of education and training-related fields. Its missions include raising awareness, establishing minimum standards, and facilitating dialogue between authorities and training institutions.

Box 9. Official micro-credential registries promote awareness

MicroCred Seeker (Australia)

Australia launched the Microcredentials Marketplace (“MicroCred Seeker”) in 2021, a user-friendly, nationally consistent platform that allows learners, employers, and providers to compare short courses. The website presents the full range of available micro-credential options across all training providers and industries in the country. In particular, it displays the course level (from novice to expert), delivery mode (online, on campus and multi-modal) and duration for each course, offering learners a range of choices. The platform also indicates whether a course offers credit points, and whether it is stackable, as some micro-credentials can be combined with other courses offered at either the same or a different provider, facilitating personalised learning pathways. Additional details listed include course fees (and any available discounts), language of instruction, start and end dates, and course details such as syllabus and assessment structure. This type of platform is a significant advancement for learners, who can search and compare micro-credentials offered by registered higher education providers and

¹⁸ Further information on Digital Promise is available here: <https://digitalpromise.org/initiative/educator-micro-credentials> (accessed on 19/02/2024).

selected VET organisations and find the most suitable micro-credentials that meet their interest or needs.¹⁹

Micro-credentials Portal (Canada)

This portal was developed by eCampusOntario with funding from the provincial government and covers micro-credentials offered by universities, colleges, and technical institutes in the province of Ontario in Canada. The project has also inspired the province of British Columbia to begin developing a similar initiative. In Ontario, micro-credentials must meet specific criteria. For instance, all those accessible via the portal are less than 12 weeks in duration. The portal also focuses on industries currently experiencing large labour shortages, such as technology, healthcare, and manufacturing.²⁰

MicroCreds.ie (Ireland)

Micro-credentials offered by universities in Ireland are registered in the MicroCreds.ie portal, where users can filter based on the NFQ level, the European Credit Transfer System (ECTS) credit value, university provider, and subject keyword or credential title. Prospective learners using the portal also find out about the duration, delivery mode, and cost of a given micro-credential. This platform was created by the Irish Universities Association (IUA) in partnership with several of its founding institutions in order to reduce barriers to lifelong learning, including time constraints and inflexible modes of delivery. The platform, and the dedicated NFQ for quality assurance and accredited micro-credentials, were developed in parallel.²¹

Odznaka+ (Poland)

In Poland, the Educational Research Institute (IBE) is implementing the Odznaka+ (Badge+) project – currently in pilot phase – which will create a public register of micro-credentials and digital badges. The IBE ensures the quality of credentials and badges by verifying providers on the registry. The inclusion of micro-credentials in the register will be based on meeting certain requirements, although this process will remain much easier than integrating micro-credentials into Poland’s NQF. The Badge+ application also provides users with additional value beyond being a public registry by allowing them to create and share their digital portfolio of credentials and badges (Cedefop, 2023^[21]).²²

Alongside platforms and websites, providers can extend their outreach efforts to vulnerable groups by for example creating targeted media campaigns to broaden take-up of micro-credentials. To this end, Cisco specifically targets women in IT roles through its “Women Rock-IT” campaign.²³ This initiative works to encourage women and girls’ interest in pursuing IT studies and careers by supporting the development of professional networks and targeted outreach via events and publications. Developing partnerships with NGOs specialised in serving disadvantaged groups is a further way to take advantage of these organisations’ specialisation and comparative advantage to reach and address the needs of, for example, ethnic minorities, migrants, incarcerated individuals, or those with disabilities.

¹⁹ Further information on MicroCred Seeker is available here: <https://www.microcredseeker.edu.au/> (accessed on 19/02/2024).

²⁰ Further information on the Micro-credentials Portal is available here: <https://microlearnontario.ca/> (accessed on 19/02/2024).

²¹ Further information on MicroCreds.ie is available here: <https://microcreds.ie/> (accessed on 19/02/2024).

²² Further information on Odznaka+ is available here: <https://odznakaplus.ibe.edu.pl/> (accessed on 19/02/2024).

²³ Further information on Cisco’s “Women Rock-IT” is here: https://cisco.com/c/m/en_sg/partners/women-rock-it.html (accessed 19/02/2024).

Beyond raising awareness, access to greater funding can support broader take-up of micro-credentials, especially by low-income individuals, the low-skilled and other vulnerable groups. Yet, across most OECD countries, micro-credentials remain outside of the formal learning sector, and therefore do not attract public funding. Governments can, however, incentivise enrolment in these programmes through the use of individual learning accounts (ILAs), i.e., personal accounts in which training rights are accumulated over time. The accounts provide an individualised budget to spend on training, with resources in the accounts mobilised only if training is undertaken. ILAs, like the ones currently in use in France and in the Netherlands, have been shown to be an effective way to publicly fund non-formal micro-credentials (Box 10). In general, given that micro-credentials are likely to be responsive to changing labour market needs by their very nature, subsidies to learners – as opposed to training providers – could be equally effective in steering demand for training towards courses that address emerging shortages (OECD, 2023^[21]).

From their side, employers can also play an important role. For example, as part of its Global Skills Initiative, Microsoft has made available USD 20 million in cash grants for non-profit organisations to help people acquire digital skills.²⁴ One quarter of this was earmarked for community-based organisations in the United States led by and serving communities of colour.

Box 10. Individual learning accounts are a promising new tool to make micro-credentials more accessible

ILAs are useful tool to support flexible learning systems, providing both a vehicle for financial support for learners while letting them make their own decisions regarding how to allocate their educational credits and pursue learning on their own schedules. Such a scheme is well-suited to the short-term, flexible, modular nature of micro-credentials. Furthermore, the accounts can include paid leave days to be used for learning purposes, making training a financially viable option for low earners (OECD, 2023^[21]). Training can also be targeted to individuals most in need of re- or up-skilling or to sectors experiencing skills shortages by increasing the resources in the accounts for members of these groups. In 2022, the European Union adopted a recommendation that Member States should consider establishing ILAs.

Evidence from the French *Compte Personnel de Formation* (CPF) shows that almost 80% of workers have used their allotted budget to attend short training programmes (less than 100 hours), suggesting their potential strong applicability to micro-credentials (Perez and Vourc'h, 2020^[23]). Alongside France – who was the first in Europe to establish an ILA – the Netherlands also recently introduced an ILA: the *Stimulans Arbeidsmarktpositie* (STAP). The Dutch public individual learning and development account was launched in March 2022 as a way to boost adult learning. Individuals in the labour force can apply for a subsidy of up to EUR 1 000 to cover their personal development and employability training costs. The programme replaces the previous system of tax deductions for educational expenses (European Commission, 2022^[24]).

²⁴ Further information on Microsoft's Global Skills Initiative is here: <https://blogs.microsoft.com/blog/2020/06/30/microsoft-launches-initiative-to-help-25-million-people-worldwide-acquire-the-digital-skills-needed-in-a-covid-19-economy/> (accessed on 19/02/2024).

Integrating micro-credentials into adult learning systems facilitates recognition and expands learning pathways

Policy makers can consider explicitly integrating micro-credentials into their broader adult learning system to facilitate greater recognition of this type of learning. One way they can do this is by directly linking micro-credentials to an NQF as a way to support integration. This will first require authorities to assess whether it is appropriate for their NQF to be expanded to cover the non-formal learning sector. For instance, some countries do not have an NQF that currently covers the entire adult learning system, such as the United States. The Czech Republic and Switzerland currently have separate frameworks for vocational and higher education qualifications (Cedefop, 2017^[18]). Therefore, efforts may first need to be established to create a single NQF that spans across the higher education, VET, and non-formal sectors. While the European Union supports broader integration, it leaves final decisions to integrate micro-credentials in regional and national frameworks to national authorities or institutions in accordance with their national circumstances (Council of the European Union, 2022^[13]). Therefore, linking micro-credentials to NQFs may not be possible in every country, which necessitates the adoption of other measures to support integration.

For countries that decide to integrate micro-credentials into their NQF, an understanding of the credit point value of micro-credentials is first required. New Zealand and Ireland are two countries where micro-credentials are integrated into the NQF (Box 11). Micro-credentials are first designated credit point values and then assigned to levels on the NQF. They can be taught at multiple levels of an NQF based on their relationship to other qualifications. Each qualification level of an NQF is also typically associated with a set of learning outcomes and competences, which facilitates learner mobility by allowing learners to move between institutions, levels, and programmes (Martin and Godonoga, 2020^[25]).

The process of integrating credentials into national frameworks complements strong quality assurance mechanisms. Listing all types of credentials and qualifications on an NQF is a comprehensive task, but it does allow learners to better understand their potential learning pathways, and supports the development of more flexible learning, as individuals can consider alternative pathways to achieving higher degrees.

Box 11. Linking micro-credentials to National Qualification Frameworks supports recognition, transparency, and integration

New Zealand's NQF comprises ten qualification levels of increasing complexity, from level 1 certificates to level 10 doctoral degrees. Each level is defined by a set of learning outcomes and credit requirements. The credit requirements indicate how many credit points are needed to achieve a qualification. For example, a bachelor's degree requires a minimum of 360 credits from levels 5 to 7, with a minimum of 72 credits from level 7 or above. Micro-credentials that have been quality assured by the New Zealand Qualifications Authority (NZQA) are listed on the New Zealand Qualifications and Credentials Framework (NZQCF). Micro-credentials on the NZQCF take between 1 and 40 credit values and are taught at all levels of the NZQCF, highlighting the strength of New Zealand's system in terms of integration. By listing them on the NZQCF, the framework allows micro-credentials to be compared to other qualifications. The framework sets out clearly how qualifications relate to each other (e.g., which qualifications can provide entry to another qualification) and in this way supports pathways from micro-credentials to higher-level qualifications (New Zealand Qualifications Authority, 2016^[26]).

Under the MicroCreds initiative, Ireland is one of the first European countries on its way to establishing a coherent national framework for quality assured and accredited micro-credentials. A new Further Education and Training (FET) Micro-Qualifications model was launched in January 2024 by SOLAS, the national agency responsible for VET and adult learning in Ireland. The new model includes 24 micro-qualifications that will be mapped to the NQF. All programmes are fully accredited and lead to a Level

4, 5 and 6 Special Purpose Awards on the NQF (i.e., narrowly defined achievement awards), helping to secure national recognition of the micro-credentials. The micro-qualifications are co-designed with industry and are accredited by the Quality and Qualifications Ireland (QQI), the national regulatory body responsible for the quality and integrity of Ireland's further and higher education system. The QQI validates courses and formal qualifications included in the NQF.²⁵ The FET micro-qualifications are delivered flexibly in in-person, blended and online formats, taught on a part-time basis at very little or no financial cost to individuals, and are in priority skill areas such as in the digital and green fields. The model – in particular, the new initiative of listing the FET micro-credentials on the NQF – will facilitate greater recognition of and trust in these qualifications.²⁶

Micro-credentials can also be integrated into broader adult learning systems through the validation of non-formal and informal learning (VNFIL) system (also called recognition of prior learning, RPL). Indeed, micro-credentials can themselves be an outcome of VNFIL processes or they can be recognised as credits towards other qualifications. As an outcome of VNFIL, validating bodies can use the learning outcomes as set-out either in national standards for quality assurance or in the NQF (for countries that have listed micro-credentials on their NQF) to conduct the validation process. These bodies can choose to award a credential like a micro-credential to recognise and validate skills that may have been acquired in non-formal and informal ways (e.g., through life experience or on-the-job training – see Box 12). Receiving a micro-credential as an outcome of VNFIL allows learners to signal their skills to employers and can help them work towards a more traditional qualification, reducing the overall time and cost of future training and supporting more flexible adult learning pathways (OECD, 2023^[2]).

Box 12. Micro-credentials can be awarded to validate non-formal learning

In the Netherlands, the *edubadge* pilot programme for tertiary education awards students a secure, electronically issued digital certification of skill. The program is run by SURF, a cooperative association of Dutch educational and research institutions, and the agency coordinating the Dutch 'Microcredentials pilot'. With an *edubadge*, learners have proof of the knowledge and skill they may have acquired either formally or non-formally (e.g., through extracurricular activities). The digital certificates, some of which are micro-credentials, are awarded by a verified issuing organisation across VET and higher education. The single, national platform allows *edubadges* to be compared, exchanged, and combined, facilitating mobility between programmes. Teaching institutions themselves develop their own *edubadges* and award the credential to a learner if they meet the criteria of learning outcomes. External parties (e.g., employers) can view the shared *edubadges* and verify their authenticity. By digitalising the VNFIL process and creating a single platform, the Netherlands supports greater trust in and recognition of micro-credentials.²⁷

Rather than an outcome, micro-credentials can also be an input of the VNFIL process. That is, individuals may seek credit value for learning acquired during a micro-credential in the process of working towards

²⁵ Traditional and technical universities are granted credential-awarding powers and are responsible for the quality assurance of their own programmes. Thus, QQI only evaluates these providers at the institutional level, while they examine programmes for other providers, most notably private independent providers.

²⁶ More information on the new FET micro-credential model in Ireland can be found here: <https://www.solas.ie/news-media/Press-release-new-fet-micro-qualification-courses-to-address-skills-needs-of-the-irish-workforce-launched-by-ministers-harris-and-richmond/> (accessed on 14/02/2024).

²⁷ More information on the Dutch *edubadge* platform can be found here: <https://www.surf.nl/en/services/edubadges> (accessed 20/02/2024).

another qualification, often a more formal or higher-level degree, particularly in systems where micro-credentials are not yet linked to the NQF. In this way, education and training institutions themselves can conduct their own VNFIL process to recognise prior learning, award credits, or provide exemptions from admission prerequisites. This may require education and training providers to adapt their internal validation processes to ensure they are effectively assessing the equivalency of micro-credentials (OECD, 2021^[19]). Providers are encouraged to reform their admissions policies to allow for more flexible admissions pathways, by for example establishing alternative sets of criteria that allow individuals to enter formal education (OECD, 2023^[2]). Importantly, micro-credentials can also act as a proof of evidence that an individual has acquired certain skills to directly obtain a validation certificate to be used in the labour market.

Moreover, universities and VET providers can consider ways to directly integrate micro-credentials into their curricula. Modularising programmes – such that a micro-credential could be one module of a formal qualification – or more generally using micro-credentials to complement degree programmes can support integration into formal systems. As also suggested by the Council of the European Union (2022^[13]), providers could publish catalogues of their micro-credentials, and where relevant, publish their policy on recognition and validation of non-formal learning to facilitate a clearer understanding of admission policies and learning pathways. A clearer understanding of how micro-credentials relate to other qualifications – either through an NQF or the VNFIL process – can help ease concerns that these credentials will replace formal qualifications. Instead, integrating them into formal systems highlights their usefulness as complements to, and not substitutes for, formal qualifications (ETUCE and ETUC, 2020^[15]).

An effective micro-credential eco-system must be underpinned by a commitment to collect data and evaluate programmes

Improved data collection efforts by both training providers and governments will help to highlight the effectiveness of micro-credentials as an educational tool and improve trust. Providers need to understand who their learners are – including for example, their educational, employment, and demographic background, and their aspirations for completing a micro-credential – which can in turn help them to extend and improve outreach efforts. Providers should thus improve their data collection efforts to better understand learner profiles, and where appropriate, tailor their advertising, outreach, and media campaigns to better attract and retain under-represented cohorts. Bundling metadata on a micro-credential into digital badges—including information such as who designed the credential and what knowledge a learner must demonstrate to earn the credential – can reinforce the recognition of and trust in digital badges while simultaneously improving the data environment without impinging upon individual data privacy.

In addition to hard data, qualitative feedback from learners is highly valuable to signal to providers and to prospective learners the strengths and weaknesses of a given credential. Micro-credential providers should incorporate data collection and assessment practices into the design of their programmes to continuously improve the quality and accessibility of their credentials. In Singapore's MySkillsFuture platform, for example, participants who complete training can leave feedback on the quality and economic impact of their training that is made available to prospective matriculants (OECD, 2023^[27]).²⁸ Partners within industry can also be involved with evaluation and revision in the same way that they are involved with generating curricula. There is a role for both the public and the private sector to undertake initiatives to conduct internal evaluations to ensure the ongoing relevance of micro-credentials being offered.

Moreover, providers should engage in data collection on the impact of programmes to improve the quality of their micro-credentials. This evaluation complements providers' internal efforts to maintain high quality standards and will further boost engagement in programmes, as learners better understand how effective

²⁸ More information on MySkillsFuture is available here: <https://www.myskillsfuture.gov.sg/> (accessed on 19/02/2024).

micro-credentials are in achieving their stated aims. Adequately understanding the value of micro-credentials requires knowing where learners come from and where they go after completing training. Follow-up on the labour market outcomes of learners who complete (and do not complete) training is imperative to assess the potential value for prospective learners. Ideally, this follow-up would include not only the first job placement, but also information on longer-term career trajectories. It is also important for governments to establish clear data collection practices and standards for micro-credential designers and providers. Data on effectiveness can support arguments for greater public funding of micro-credentials and can be used to direct public support toward sectors and segments of the population who most stand to benefit. Academics and researchers can take-up a greater role here as well, by providing the necessary rigorous evaluation of programmes and policies. Important legal considerations regarding data privacy need to be considered as firms establish their data infrastructure and governments centralise data efforts.

As part of this data collection exercise, countries should agree on a consistent definition of micro-credentials. A clear definition will help evaluation and policymaking efforts. Going forward, countries are encouraged to adopt existing definitions, such as the one set-out by the Council of the European Union (Box 13) or to create their own to improve transparency and aid evaluation efforts. Member States in Europe are being urged to align national definitions to European Union standards. Going forward, countries should establish clear definitions at the national level or adopt international definitions where possible. Efforts can also be made to settle distinctions between micro-credentials and other forms of alternative credentials, with many countries using the term interchangeably with other terms (Brown et al., 2021^[28]; Cedefop, 2022^[4]; Kato, Galán-Muros and Weko, 2020^[29]; OECD, 2021^[1]).

Box 13. Adoption of a consistent definition would help to support evaluation efforts

In its 2022 Recommendation on a European approach to micro-credentials for lifelong learning and employability, the Council of the European Union (2022^[13]) defines a micro-credential as:

...the record of the learning outcomes that a learner has acquired following a small volume of learning. These learning outcomes will have been assessed against transparent and clearly defined criteria. Learning experiences leading to micro-credentials are designed to provide the learner with specific knowledge, skills and competences that respond to societal, personal, cultural, or labour market needs. Micro-credentials are owned by the learner, can be shared and are portable. They may be stand-alone or combined into larger credentials. They are underpinned by quality assurance following agreed standards in the relevant sector or area of activity.

More generally, outside of the European Union, countries may consider other international reference points when formulating their own definition. UNESCO (2022^[12]) has developed a generic definition of micro-credentials based on the contributions of a global expert panel. They note that their proposed definition should not replace national or regional definitions and is instead intended to serve as an international reference point. It states that:

A micro-credential: is a record of focused learning achievement verifying what the learner knows, understands or can do; includes assessment based on clearly defined standards and is awarded by a trusted provider; has standalone value and may also contribute to or complement other micro-credentials or macro-credentials, including through recognition of prior learning; meets the standards required by relevant quality assurance.

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