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Research paper

Microcredentials for labour market education and training

First look at mapping microcredentials in European labour-market-related education, training and learning: take-up, characteristics and functions

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Foreword

This publication was prepared as part of the Cedefop project *The role of microcredentials in facilitating learning for employment*. The purpose of this research is to gain a first understanding of the characteristics and added value of microcredentials and their limitations, in supporting the learning careers of individuals in the 27 Member States of the EU as well as Iceland, Norway and the United Kingdom.

The research is divided into three separate but interlinked themes:

(a) mapping the current use of microcredentials for labour market oriented vocational and professional education and training;
(b) positioning the phenomenon of microcredentials in relation to the longer-term evolution of certification and qualifications systems;
(c) analysing the potential use of microcredentials for end users, notably individual learners and employees.

The research aims not only to identify the conditions for trusting microcredentials, as seen from the end-user perspective, but also the extent to which a systemic and strategic contextualisation of microcredentials is taking place and the implications of this.

As significant research carried out so far is limited to higher education and universities, a key purpose of this work is to produce evidence on how microcredentials are used by and for the labour market. It is viewed from the perspective of formal education and training providers as well as labour market stakeholders (for example companies, professional and sector bodies) operating outside education and training systems.

The current report focuses on and explores the take-up, characteristics and functions of microcredentials in European labour-market-related education, training and learning. The mapping exercise helps to identify the main characteristics of microcredentials as currently emerging in the context of VET and reskilling and upskilling initiatives.

The research underlines the uncertainty linked to the naming and function of microcredentials as well as the need for wider awareness of their use and potential in boosting lifelong learning. Flexibility and responsiveness to labour market needs stand out as the most prevalent benefits of microcredentials, but more work needs to be done on building trust, as those more trusted are linked to formal, nationally recognised qualifications.

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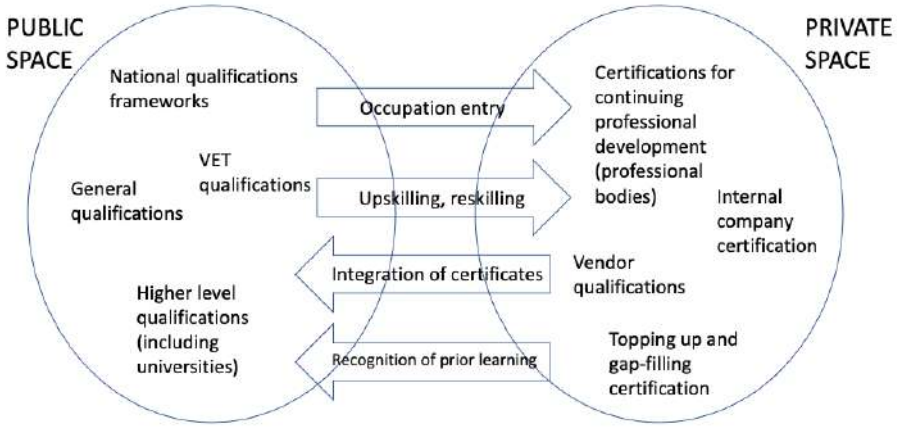
Executive summary

Emergence and operation of microcredentials within a changing landscape of education and training

The landscape of education and training is changing with the emergence and wider use of various types of credentials. These changes can be seen in both the public and private spaces that exist within the provision and recognition of vocational education and training (VET). The public space plays a more prominent role in initial vocational education and training (IVET), while the private space is more prominent in the provision of continuous vocational education and training (CVET). Considerable variation exists between different European countries and even between sectors, which are influenced by the overall characteristics of national VET systems. The public space largely consists of qualifications at various levels that form part of qualifications frameworks; these have the purpose of providing opportunities for occupational entry as well as upskilling and reskilling. The private space, meanwhile, is populated by credentials that are gained through participation in short learning activities with varying degrees of assessment and recognition within industries and occupations (Figure 1). It is not possible to accommodate all existing microcredentials within the formal system, so some will remain outside. Short learning activities within the labour market are usually provided to meet a variety of needs. These can include:

(a) specific professional development needs, which often come from well-established professional organisations;
(b) ad hoc needs to close skills gaps and update skills, which constitute a large private market that is often not assessed and is based on certificates of attendance;
(c) internal company training and career development, which is usually organised by individual companies, both in-house and by private providers, with large companies often providing their own training offers.

Figure 1. **Microcredentials in public and private spaces**



Source: Cedefop.

The main drivers of change behind the use of a variety of credentials that can be identified as microcredentials are as follows:

(a) the fourth industrial revolution, which has brought with it structural economic and labour market changes and has been characterised by the digitalisation of products and services, automation, artificial intelligence, robotics, the internet of things, autonomous vehicles, 3D printing, nanotechnology, biotechnology, materials science, energy storage and quantum computing (Schwab, 2016). It has opened up new industrial sectors and professional disciplines, and has broken some professions into more specific subspecialities, creating a greater need for continuous reskilling and upskilling;

(b) changes in the nature of teaching and learning that have been decoupled from time and space, creating a significant increase in the ability to provide learners with new and different experiences, as well as faster and more tailored feedback (European Commission, 2020b). At the same time, labour market demands for digital and individualised learning have risen steadily, in line with the discourse surrounding ‘just in time’, on-demand training and learning. The Covid-19 pandemic has further increased demand for, and the digital capacity to develop, such learning activities. As can be seen in the figure below, some of the most important digital credentials and MOOC (massive online open

course) platforms developed in parallel with the recent advancements in information and communication technology (ICT) ([1]);

(c) the globalisation of competences and labour markets, under which international vendor certificates are becoming industry standards, and the sought-after certificates have become those that define industry standards for competences. An example of this exists within the ICT sector itself, which has an 'internal' market in technology certificates (e.g. from Cisco, to provide business-to-business products and services), as well as an 'external' technology market, providing certificates to the consumers of products (e.g. Microsoft).

These drivers have brought about very specific changes within education and training and the way in which microcredentials fit into it. When looking at the changes that have occurred over the last couple of decades, we can identify several main differences, listed below. These indicate that microcredentials are not a completely new phenomenon but is their characteristics that are changing, such as the quantity, character, format and purpose.

(a) the quantity of microcredentials in both public and private spaces has increased, particularly in relation to in-company training and upskilling and reskilling opportunities;

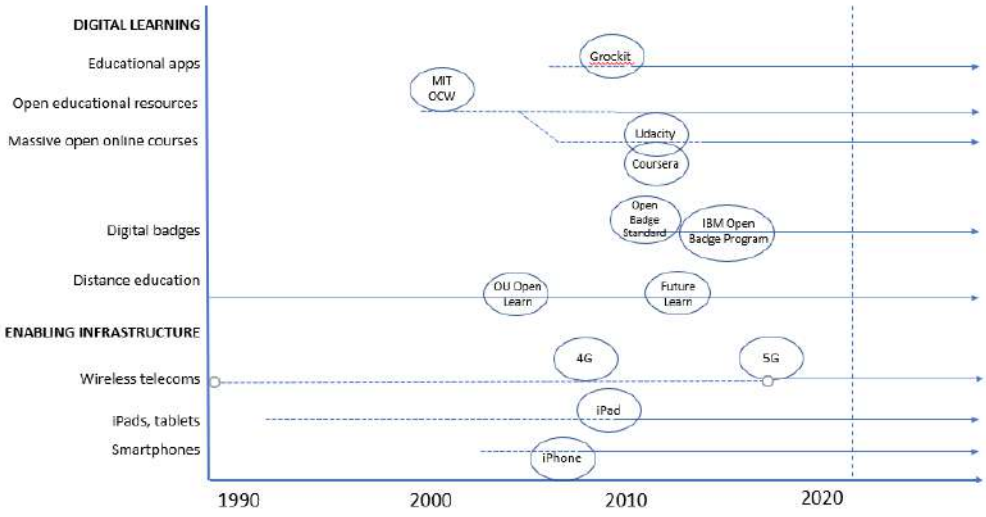
(b) the character of microcredentials, which can be issued in various formats, as well as the learning activities that lead to microcredentials, which can be delivered in different ways (e.g. online, blended, in-class, apprenticeship);

(c) increasing permeability between the public and private sectors (Figure 2). The public sector increasingly focuses on upskilling and reskilling and the recognition of prior learning, and views microcredentials as a possible solution. The private sector, meanwhile, is increasingly seeing its own qualifications and credentials being integrated into public provision (e.g. the integration of vendor certifications into qualifications validated by universities);

(d) the increasing complexity of relationships between different stakeholders such as the designers and providers of learning activities, awarding bodies and qualifications authorities.

([1]) Microcredentials are often seen by many as by-products of the proliferation of massive online open courses (MOOCs).

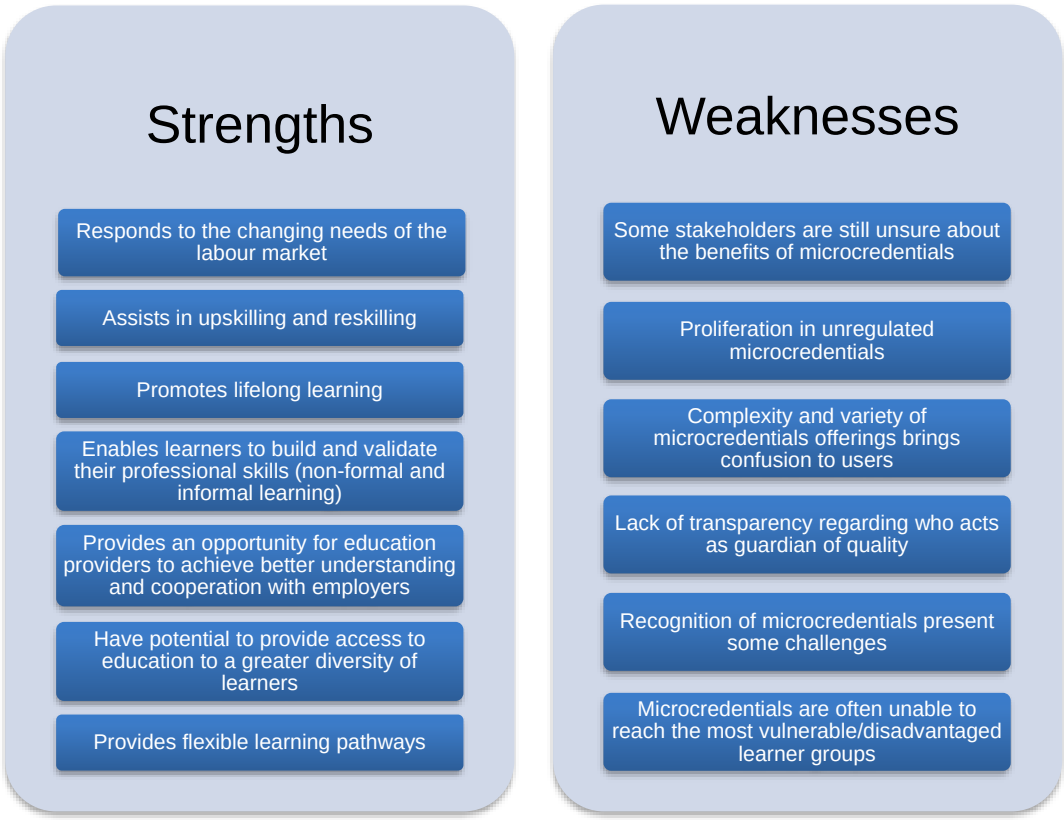
Figure 2. **Changes in the credentials landscape**



Source: Cedefop.

Due to the drivers mentioned above – which include digitalisation, the globalisation of skills and continuous changes in teaching and learning as well as in the needs of the labour market – the use of microcredentials has grown in both public and private spaces; so has the number of different types of credentials in use. Despite this, challenges still exist in relation to improving and scaling up the overall system of microcredentials. A list of the main strengths and weaknesses of microcredentials, as summarised from the literature review, is presented in Figure 3.

Figure 3. **Strengths and weaknesses of microcredentials**



Source: Cedefop.

Microcredentials in European labour-market-related education, training and learning

As the quantity of credentials existing in education and training settings, and discussions about these credentials, increases, the interpretation of what microcredentials are, and what they entail in different contexts, remains fluid and constantly changing. According to the data collected by this study, microcredentials have only recently gained Europe-wide attention in policy debates, with some EU Member States having only recently familiarised themselves with the term and launched or become involved in discussions.

Despite this, a wide range of certified and uncertified short learning activities in different national contexts fit the definition of microcredentials proposed by the European Commission. Different types of credentials, including professional certificates, academic certificates, vendor-specific certificates and digital badges, are being issued by VET providers and labour market actors across European countries. The main providers of microcredentials in the labour market include

large companies, industry associations and online learning platforms, which often cooperate with formal VET providers to offer them. They are being offered across a broad range of sectors including product-focused ones such as engineering, manufacturing, construction and ICT, as well as service-focused ones such as health, education, business administration and law; they also exist for generic programmes and qualifications. Labour market stakeholders see greatest added value in sectors where employees have to adapt quickly, learn new technologies and offer new products. Microcredentials have an important role to play in upskilling and reskilling, quickly and accurately responding to the needs of the labour market, providing more flexible learning pathways, providing ways to recognise prior learning, and making knowledge, skills and competences more visible. Microcredentials are sought by learners with diverse range of characteristics but, due to the main purposes of microcredentials being closely linked to labour market relevance and flexibility, they are largely used by adults.

Parts of qualifications or modules, are often considered to be equivalent to microcredentials in some VET systems. In this context, the trend towards modularisation is highly relevant. Increasingly, traditional VET programmes that are designed for, and lead to, a specific qualification are being replaced by modular programmes that use sectoral standards and are expressed in terms of learning outcomes and grouped into smaller units. The main purposes and objectives of microcredentials echo the goals of modularised learning, which helps explain why many stakeholders identify microcredentials as partial or module certificates. However, there are also opposing opinions, explaining that microcredentials should not only be identified as deconstructed qualifications, but should also refer to something supplementary to the existing system. Despite these diverging opinions, microcredentials are largely seen as not posing any major threats in terms of replacing or substituting for formal qualifications because they serve different purposes and target different markets. Full qualifications most often target the young and young adults either before they begin, or at the beginning of, their careers; microcredentials more often target people who already have full qualifications or experience of working life. Microcredentials are largely seen as complementary to the traditional education and training systems that are not always ready to quickly respond to the rapid changes taking place in the labour market and society at large.

CHAPTER 1.

Introduction

1.1. Socioeconomic context

The growing popularity of microcredentials is an outcome of competing societal and economic forces and macro-level trends, reflecting changing perspectives on what individuals, employers and governments expect from education. Over the last decade, there has been a growing need for new and flexible ways of learning, together with flexible approaches to recognising knowledge, skills, and competences regardless of the context of origin. Megatrends such as digitalisation, automation, demographic changes, climate change, and the COVID-19 crisis all impact the link between education systems and the labour market and increase the importance of continual up- and reskilling. With some jobs at risk of being obsolete, others being transformed, and new ones being created, the notion of a 'job for life' is a thing of the past. The effect of emerging technologies on the future of work and skills means that individuals will need to learn throughout their entire lives, in new and flexible ways, both inside and outside formal education. The ILO emphasises that 'the frontloading of skills through initial training for a single lifetime qualification is not sufficient or effective and education and training systems of the future need to be flexible and prepare individuals to learn continuously over their life' (ILO, 2018).

The pressing need for European citizens to continue to learn, adapt to ever-changing workplaces, to upskill and reskill in different and more flexible ways is essential for supporting growth in the economy and enabling individuals to enter and progress in a changing labour market. In this changing context, microcredentials as widely accessible, affordable, short, and stackable chunks of learning, can enable European citizens to acquire new skills in a more flexible and practical way to ensure their skills are recognised in the labour market. There have been significant policy responses: the shift to learning outcomes and modularisation in lifelong learning systems, the expansion of national qualifications frameworks and credit systems, digitalisation of education, improvements in guidance and validation systems, and greater emphasis on individual learning pathways.

1.2. Emergence of microcredentials

The opportunity to gain microcredentials has grown exponentially, partly driven by growing costs of higher education and by the growth of MOOCs; these are typically offered in the higher education sector and supported by large employers (e.g. Amazon, Apple, Cisco, Google). Systems of credit-awarding short-learning modules have been prominent features of education systems offered by NGOs such as the Red Cross and the Professional Association of Diving Instructors, of continuing professional education systems such as the NHS CPD credits system, and of professional certifications offered by companies such as Microsoft and IBM. The scale of alternative credentials – defined broadly as certificates, digital badges, and microcredentials – has also expanded considerably (OECD, 2020). Higher education institutions, businesses and other institutions are thus actively offering alternative credentials that help learners acquire new skills, update their existing skills, and signal the competences they already have.

However, this activity has largely taken place outside of the formal education sector. As a consequence, there are growing concerns over the quality and transparency of provision, interoperability with the formal education sector: if they were in place, these aspects could support access, modular progression, transferability and labour market mobility. The growth of microcredentials in all different shapes, size, names, duration, assessment methods and delivery modes, means employers and individuals can find it difficult to understand the quality and value of the learning experience compared to formal qualifications.

1.3. Scope of the study

Most of what is written about microcredentials largely concentrates on the recognition of learning acquired, mainly through MOOCs offered by higher education institutions. While providing a basis for understanding the evolution of credentials, the focus on higher education inevitably misses out on the developments closer to the labour market, in VET and work-based learning. Therefore, the main objective of this publication is to provide a background analysis of the role microcredentials play in supporting labour-market-related education, training and learning. Given that significant research carried out so far is limited to higher education and universities, a key purpose of this research is to produce evidence on:

(a) mapping microcredentials in labour market oriented vocational and professional education and training;

(b) mapping microcredentials that operate as integrated parts of formal qualifications and credentials systems and the ones that evolve outside and independently of such systems;
(c) identifying the main characteristics and distinguishing features of microcredentials.

Producing evidence on how microcredentials are used by and for the labour market, as seen from the perspective of formal education and training providers as well as labour market stakeholders (companies, professional and sector bodies) operating outside education and training systems is necessary to understand the following:

> Is the increased attention to microcredentials mainly linked to (digital) delivery form or it is related to a genuine change in the way we recognise knowledge skills and competences and serve the changing needs of end users (learners and employers)?

This question is very important for the study considering that systems of credit-awarding short-learning modules which are stackable and employment-oriented have been a feature of education systems for decades. However, microcredentials have emerged to meet employer demand for greater flexibility in their efforts to train their workforce, and from individuals who require easier access to more affordable modularised learning opportunities. As the vast and rapid proliferation of microcredentials on a national and international scale has mostly taken place outside of formal education, it is important to understand the quality and value of these learning experiences compared to formal and traditional qualifications.

1.4. Defining microcredentials for this study

The term ‘microcredential’ has been used to describe shorter forms of learning experiences irrespective of type, mode and size. In many cases seen as a by-product of the proliferation of open and online courses (MOOCs), microcredentials are generally seen as a (frequently digital) way to give visibility and value to predominantly shorter learning courses and/or experiences. Seen by some as primarily a way to recognise learning outcomes acquired outside education institutions, for example at work, others saw these credentials as integrated parts of formal education and as a way to recognise smaller chunks (modules or units) of formal education and training. Further aspects of microcredentials include: increasing permeability between different education pathways/systems to improve flexibility; making learning more adaptable to individual need to support more

innovative and inclusive approaches; and facilitating access to the labour market and job transitions.

Preliminary research conducted in 2021, together with a review of the existing literature on microcredentials, revealed debate between different actors in an attempt to define and understand microcredentials. For this reason, a preliminary working definition of microcredentials proposed by a consultation group formed by the European Commission (European Commission, 2020a) was used as a reference point in this study; however, as highlighted in the evidence gathered, consideration was given to other descriptive definitions that are in use, both in what we might term formal, official contexts (such as government strategies) and less formal, day-to-day contexts (e.g. among private sector providers of short courses and certificates). The European Commission's working definition (European Commission, 2020b) is as follows:

'A microcredential is a proof of the learning outcomes that a learner has acquired following a short learning experience. These learning outcomes have been assessed against transparent standards. The proof is contained in a certified document that lists the name of the holder, the achieved learning outcomes, the assessment method, the awarding body and, where applicable, the qualifications framework level and the credits gained. Microcredentials are owned by the learner, can be shared, are portable and may be combined into larger credentials or qualifications. They are underpinned by quality assurance following agreed standards.'

Due to the exploratory nature of this study, shorter forms of learning activities that lead to credentials (shorter than a full qualification) offered in EU countries ([2]), even if these would not entirely correspond to the definition proposed by the European Commission, had to be considered. While the term 'microcredential' is increasingly used to capture the official and/or formal valuing of short units of learning, a number of other terms are commonly used. These include but are not limited to: professional certificates or cards, vendor-specific and vendor-neutral certificates, digital badges, open badges, academic certificates, nano degrees and micro masters.

As the evidence presented in this report shows, such short courses and certificates span a vast range in terms of who offers them (e.g. whether public or private providers), their content (whether they specify learning outcomes), and the standards that pertain to them (the robustness and transparency of quality assurance methods). It is likely that most small credentials currently caught up in discussions of 'microcredentials' do not conform to some normative standards

([2]) The study covers the 27 EU Member States plus Iceland, Norway and UK i.e. 30 countries in total.

implied in the European Commission working definition which liznks ‘microcredentials’ to standards (such as the specification of qualification levels, credits gained, the possibility to combine them into larger credentials or qualifications, and the underpinning of transparent and agreed quality standards).

CHAPTER 2.

Research background and approach

2.1. Research background

The role, value and currency of qualifications in the labour market are undergoing change due to global megatrends. Qualifications, or credentials as a ‘currency of opportunity’ mediate the relationship between education and occupational destinations. Formal education qualifications have the role of ‘certifying’ and ‘signalling’. In the case of certification, ‘an educational qualification may serve to certify that an individual has acquired certain specific forms of knowledge, expertise or skill’ (Jackson; Goldthorpe and Mills, 2005).

In relation to signalling, credentials are seen to signal the possession of certain attributes that are difficult to observe at the time of recruitment but are viewed as relevant for an individual’s productive capacity. Given the increasingly fast developments, qualifications systems cannot keep up the pace of renewal and can lose their relevance for labour market stakeholders. In this context, more and more alternative credentials are playing a role to show that holders have a certain, certified set of skills that are in demand by labour market stakeholders. These alternative credentials provide a valuable new option, as formal qualification can be insufficiently flexible in terms of recognising or providing credit to learners who undertake learning beyond that offered by formal education and training providers.

While the currency and value of traditional qualifications seems to be slightly deteriorating (given that labour market stakeholders demand shorter courses and quicker renewal of qualifications), there is a need to increase transparency and (quality) control on the credentials that are offered outside formal education and training systems.

At present there is not much information available on the development and use of microcredentials (or 'alternative credentials') outside higher education (i.e. in VET, work-based learning, labour-market-related education, training and learning). As microcredentials are assumed to play a role in upskilling and reskilling, it can also be assumed that they are offered not only in the context of higher education but also by vocational and professional education and training institutions and providers, as well as labour market stakeholders. For this reason, the report attempts to map these (emerging) microcredentials in the context of VET and up- and reskilling initiatives and identify their main characteristics.

2.2. Analytical and methodological approach

A model has been developed for analysing microcredentials in labour-market-related education, training and learning linked to the role of qualifications and credentials for future-proof life-wide education and training systems. It mainly identifies three interconnected dimensions, as well as external conditions that affect these dimensions (Figure 4). This report primarily concentrates on the first dimension of this analytical model, and only briefly covers the other two, which will be analysed in greater detail in the upcoming reports.

The first dimension of the model is concerned with the technical and pedagogical side of microcredentials: those elements relating to the design and delivery of learning experiences that lead to microcredentials. Currently available options vary in terms of their characteristics and functions. The mapping exercise implemented as part of this study has allowed the identification of main characteristics and functions, either existing or currently emerging in labour-market-related education, training and learning across Europe. This also allows us to evaluate the extent to which microcredentials are being used, developed and awarded.

The second dimension of the model deals with the relationship between microcredentials and qualifications systems and frameworks ([3]): whether they are located within or outside these systems; the ways in which they are being recognised and quality assured; and whether or not they can be accumulated. The analysis cannot be carried out as an isolated phenomenon and needs to consider the ongoing evolution of credentialing ecosystems and how these relate to formal qualifications systems. Most European qualifications systems have been undergoing changes in relation to the shift towards learning outcomes, the introduction of qualifications frameworks and arrangements for validating and recognising non-formal and informal learning outcomes, which often encourage the opening up of the systems to different learning experiences. Parallel to these developments have been industry-driven changes relating to digitalisation and the greening of the economy, as well as international regulations such as those on compliance and safety, where labour market actors have taken steps to set standards for knowledge, skills and competences in the form of credentials.

The third dimension of the analytical model concerns the added value of microcredentials for different stakeholder groups. The underpinning rationale for microcredentials in the policy discourse is that learners are increasingly seeking flexible, personalised and on-demand education, training and learning. This is also

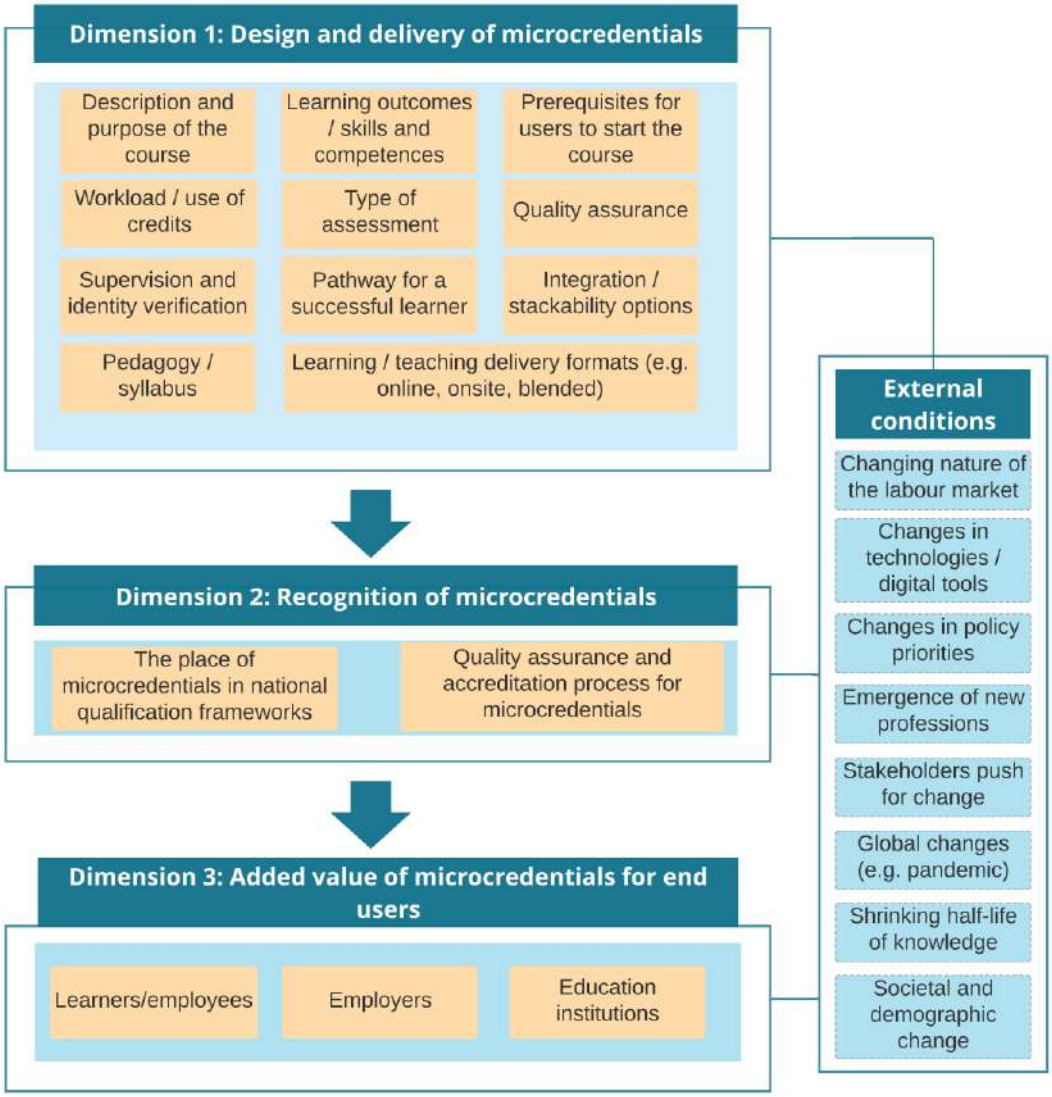
([3]) A qualifications framework may always be seen as a component of a qualifications system.

driven by the narrative of lifelong learners taking responsibility for their own upskilling and reskilling: within this context, employers expect education and training systems to be responsive to the changing needs of the labour market by addressing, in a flexible manner, knowledge, skills and competences and knowledge gaps as they emerge. Education and training providers are increasingly seeking to attract more diverse groups of learners to whom they can offer a wider variety of learning experiences. This may be driven by strategies and policies aimed at lifelong learning, and also by the marketisation of education and training, with institutions looking for new revenue streams.

The proposed model also considers external factors that might influence the three dimensions or the development of different elements under each of these dimensions. These are mainly related to constantly occurring changes in different areas, including labour market, demographics, political/policy priorities, global events (e.g. pandemic), technologies, stakeholder needs and opinions, as well as half-life of knowledge. For example, the changing nature of the labour market and the growing uncertainty around how the future of work will look strongly impacts the growing use of microcredentials and the emerging discussions on how they fit in qualifications frameworks. In the context of qualifications frameworks, quality assurance and recognition of microcredentials becomes important; this, in turn, impacts how courses leading to such qualifications are designed and delivered ([4]).

([4]) These aspects will be discussed in more detail in the upcoming Cedefop publication on microcredentials and qualifications frameworks.

Figure 4. **Analytical model**



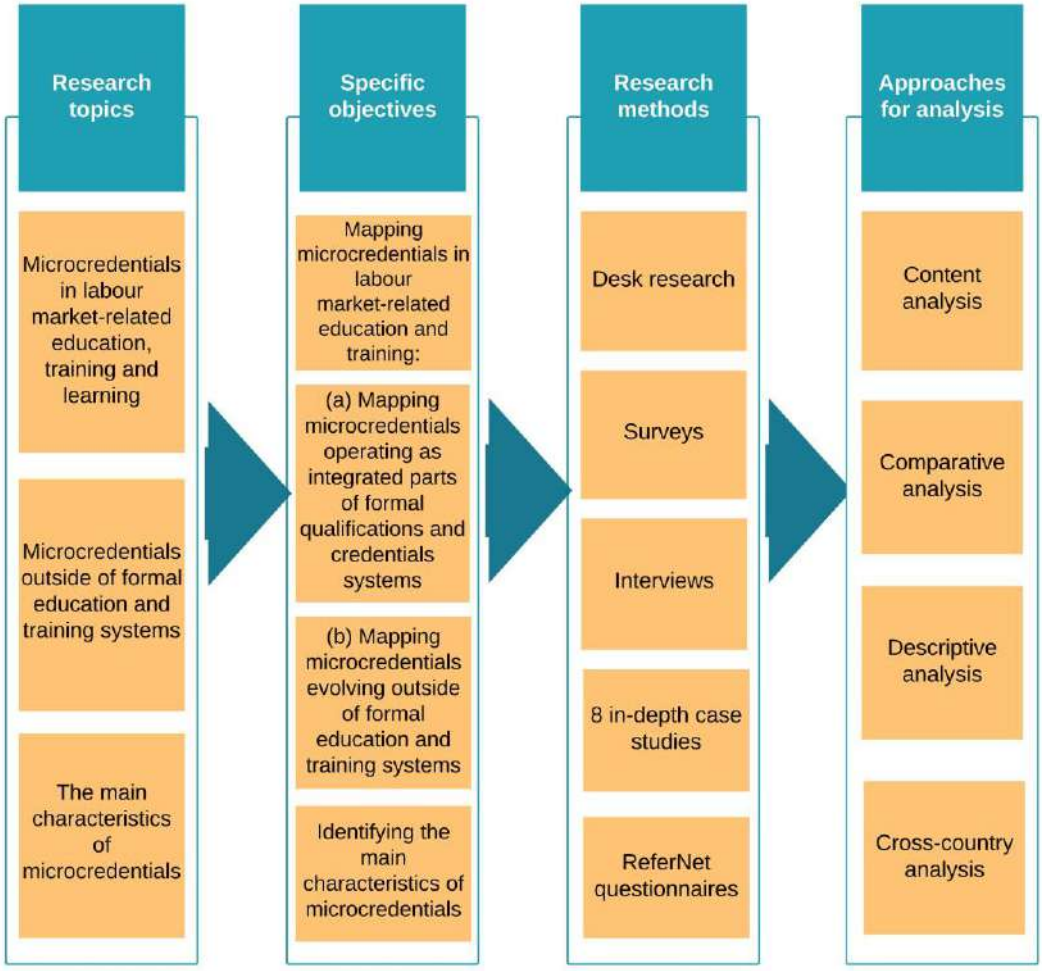
Source: Cedefop.

The methodological approach used to implement this assignment was designed from the analytical model used (Figure 5). This report concentrates mainly on the first dimension, which deals with the technical and pedagogical aspects of microcredentials.

The research topics were covered by employing several research methods and approaches to the analysis. The main methods used were desk research, surveys and interviews at European level, while case studies and data provided by Cedefop's ReferNet network focused on the national level. The data collected using these mixed methods were then subjected to qualitative analysis. Content analysis allowed us to examine the collected data to identify the main

characteristics of microcredentials, both within and outside formal education and training. Content analysis and cross-country analyses helped to identify the main developments, uses and trends relating to microcredentials. Comparative analysis was then further employed to compare developments in, and the use of, microcredentials between different countries. The study also employed descriptive analysis to analyse the survey data.

Figure 5. **Methodological approach used to implement the assignment**



Source: Cedefop.

The geographic scope of the study covered 30 countries: the EU-27 plus Norway, Iceland, and the United Kingdom. Data collection comprised five different strands:

(a) desk research on existing studies and policy documents to develop the analytical framework and insights for the overall study on microcredentials, of which this report is one component ([5]).
(b) eight case studies, each providing an in-depth analysis of the use of microcredentials in the selected country. The countries analysed are Germany, Ireland, Spain, France, the Netherlands, Poland, Slovenia and Finland. These counties represent variations in national contexts and education and training systems, resulting in different outcomes for microcredentials ([6]).
(c) four surveys implemented across Europe (Figure 6) and addressing four stakeholder groups: national authorities, education and training providers, employers and employer organisations, and employee organisations ([7]).
(d) 147 interviews. The interview programme included in-depth interviews in the eight case study countries, plus supplementary interviews in countries that were not covered by the case studies ([8]).
(e) comprehensive data provided by Cedefop's ReferNet network (based on a questionnaire specifically drafted for the purpose of supporting this study);

The use of a mixed-methods approach added value in the context of this study, as the concept of microcredentials is only beginning to materialise and little primary data is available as yet at European level. Statistics on survey responses are presented in Figure 6.

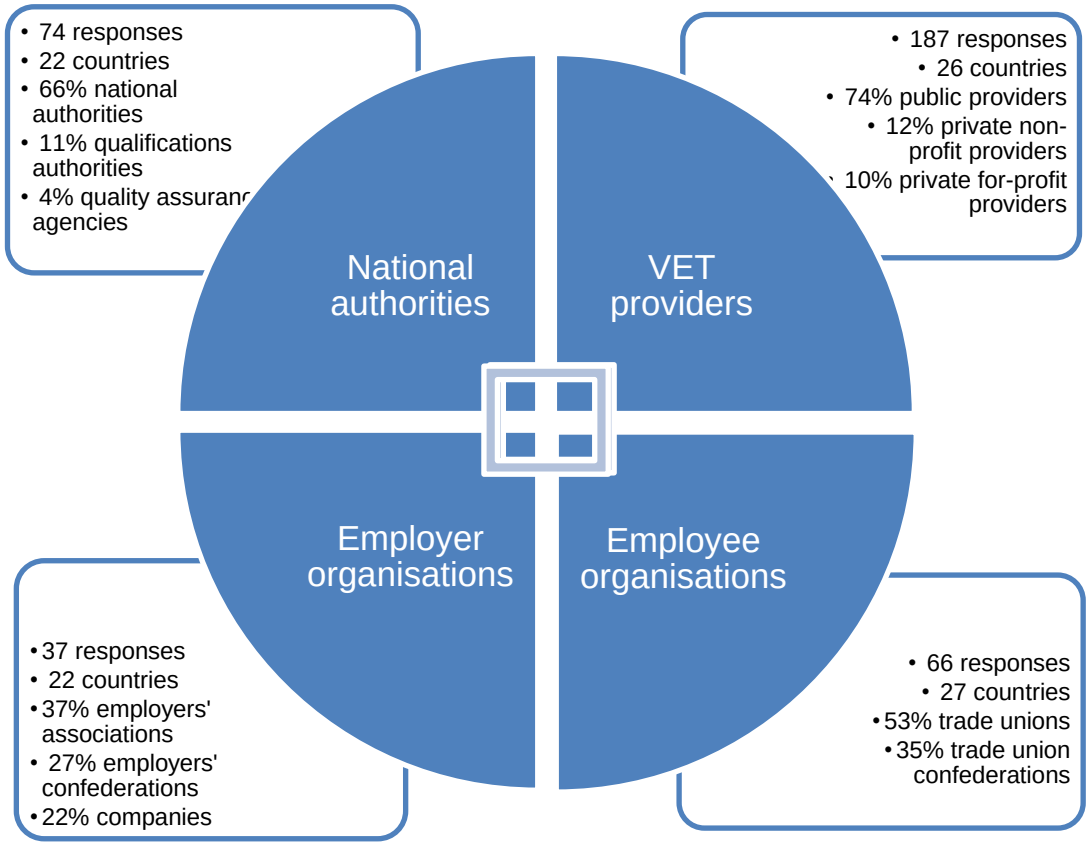
([5]) The literature review mainly considered national and regional documents; studies and monitoring reports and evaluations in and training; academic articles and consultancy positioning papers.

([6]) The case studies were based primarily on desk research and interviews, as well as some information from the surveys that were conducted among four stakeholder groups across Europe

([7]) The surveys ran between 7 June and 12 July 2021, using the in-house survey tool Alchemer. The link was also disseminated through the ePlatform for Adult Learning in Europe (EPALE) and various stakeholder organisations, including the European Vocational Training Association (EVTA) and the European University Continuing Education Network (EUCEN).

([8]) Interviews were conducted with stakeholders including national authorities, education and training providers, companies, employers and employer organisations, employee organisations, researchers and other relevant actors. In total, interviews were carried in 18 countries; the eight national case study countries, plus Belgium, Bulgaria, Cyprus, Denmark, Estonia, Hungary, Latvia, Lithuania, North Macedonia and Sweden.

Figure 6. **Statistics on responses to the four surveys**



Source: Cedefop.

Responses to the survey of vocational education and training providers were unequally distributed between countries. More than half of all respondents came from institutions in Croatia. To avoid overrepresentation, responses to the survey for vocational education and training providers were adjusted by applying iterative proportional fitting (i.e. raking) to better align with the variable for the country's population. Using weighted averages, the survey sample was calculated to take into account the varying degrees of importance of the numbers in a data set. Respondents from countries that were underrepresented were assigned a coefficient of 1.0 or higher, and respondents coming from countries that were overrepresented were assigned a coefficient of less than 1.0, depending on the distribution of the survey samples by country.

CHAPTER 3.

Observations on the overall trends

This chapter aims to paint a preliminary picture of the landscape in which microcredentials evolve, offering an overview of their main characteristics. Initially, the chapter attempts to provide better understanding of the phenomenon at national level, presenting how it is perceived, and exploring the extent to which the term is used in contrast with other learning practices already in place. It also takes a first look at the links between modularisation and microcredentials. The second part describes the political and legal context in which microcredentials emerge and operate in different Member States. The final section illustrates their main characteristics, including data on the mode of delivery, type of certification, assessment, quality assurance mechanisms, and whether they can be accumulated and combined with other microcredentials or qualifications.

3.1. Understanding microcredentials

Key findings

- There is uncertainty linked to the naming and function of microcredentials.
- At national level, the specific term has not been commonly used, even when there is a longstanding practice to offer shorter learning experiences.
- The identified wide variety of short education and training activities indicates that, to a degree, the phenomenon is already real.

The study confirmed that there is considerable uncertainty linked to the naming and function of microcredentials, as in most countries there is no official definition. Interpretations of what microcredentials are, and what they entail in different contexts, are fluid and constantly changing. The lack, of a commonly agreed definition at European level at the beginning of 2021, further fuelled this phenomenon.

A key finding of the study is that, at national level, the specific term has not been commonly used, even when there is a longstanding practice to offer shorter learning experiences. Although terms like open badges or small volume certificates indicate that the phenomenon is real, the term microcredential is often not accepted or widely recognised. For example, Malta does not use the term is not but there is a long-standing tradition of accredited short learning experiences leading to the ‘award’ credential, integrated into the national qualifications

system/framework/catalogue (Cedefop, 2021a). Similarly, in Ireland, credentials certifying small volumes of learning, such as minor, special-purpose and supplemental awards, digital and web badges existed well before the introduction of the term microcredential (Cedefop, forthcoming-c).

Another assumption encountered, which leads to confusion, relates to the fact that many stakeholders think that microcredentials constitute a form of certification which is issued specifically in a digital format. According to the study, this perception can be misleading as microcredentials in countries where they are being already used are also, to a large extent, being issued in a paper format.

In the survey of national authorities, we enquired whether the term microcredential is used in the national context. Most respondents (55%) indicated that the term is not used, or that they did not know/could not answer (14%). Only 31% of respondents indicated that the term 'microcredential' is used in their national context. Additionally, 38% of respondents indicated that another term was used in their country that fits the working definition of microcredentials proposed by the European Commission (European Commission, 2020a) (Section 1.4.); 23% of them were unable to answer or did not know, highlighting the uncertainty around the term.

3.1.1. Terms used at national level

A wide range of terms that fit (fully or partially) the definition of microcredentials were identified in the study. The most common replies included badges, certificates, module certificates, partial qualifications, micro-qualifications and supplementary qualifications. Since, in most countries, there is no official definition, it is not always clear-cut if existing credentials can be considered as microcredentials. For instance, in the French community of Belgium, specific existing qualifications can be associated to microcredentials on the basis of certain similarities, but they never fully comply with the working definition of the European Commission (Cedefop, 2021a). In Czechia, vocational qualifications defined by the National register of qualifications (*NSK*) follow the concept of microcredentials; following standardised examinations, certificates of the NSK vocational qualifications document the competences that holders may have acquired through a short learning experience (Cedefop, 2021a). A list of examples of nationally used terms, fitting (fully or partially) the European Commission's working definition is presented in Table 1 ([9]).

([9]) It should be noted that this is an indicative list capturing the perceptions of microcredentials at national level (since examples may not be applicable following the adoption of the official definition).

Table 1. **Examples of terms used at national level, associated with microcredentials**

Country	Nationally used terms
Belgium	Various types of programmes fall under the definition of microcredentials: micro-degrees, nano-degree, micro masters, credit certificates, postgraduate courses, further training (*bijscholing*), refresher courses or training (*nascholing)*, module proof in adult education (*modulebewijzen)*, recognition of prior learning (*EVC-bewijs*), partial qualification in adult education (*deelkwalificatie volwassenenonderwijs)*, credit contract in higher education (*creditcontract hoger onderwijs)*, Units of learning outcomes (*Unités d'acquis d'apprentissage - UAA*), validation certificates (*attestations de validation*), Specific Training Outcomes Certificates (*CAFSs*). In adult education (*Enseignement de Promotion Sociale*), training is organised on a modular basis, including course units (*unité d'enseignement*); each course unit leads to a specific Pass Certificate (*attestation de réussite*).
Bulgaria	Partial qualification, part profession (*Обучение/обучение по част от професия*), non-formal certification course (for example to become an auditor or real estate appraiser).
Croatia	In formal adult education, there are short training programmes (*programi osposobljavanja*) of at least 120 hours, awarding short training certificates (*uvjerenje o osposobljavanju*) and professional development programmes (*programi usavršavanja*) of at least 150 hours, awarding professional development certificates (*uvjerenje o usavršavanju*).
Cyprus	Unit of learning outcome (module), ECDL certificate, training with assessment is a prerequisite to obtain licence to practice a regulated profession.
Czechia	Vocational qualifications, badges.
Denmark	nano-degrees, intensives, digital badges, mass open online courses (*MOOCs*), bootcamps and labour market training (*Arbejdsmardkedsuddannelser*)
Estonia	*Microdegree, micro-qualification,* nano degrees (*nano-kraadid)*, units (*osakutsed)*, partial qualifications (*osakvalifikatsioonid)*, partial degree (*osakraad*).
Finland	Small competences (*Pienet osaamiskokonaisuudet*) is the most well-known term. Terms also used are the following: part of the degree (*tutkinnon osaa*), microcredential (*mikrokredentiaali*), micro-degree (*microtutkinto*) and competence badge/digital badge (*osaamismerkki*), web badges, nano-degrees, mini-degrees and micro-certifications and working permits.
France	Certifications and authorisations offering additional professional skills, cross-functional skills or skills resulting from a legal obligation to carry out a professional activity, Certificate of skills (*Attestation de compétences*), Certificates of professional qualification (*CQP, Certificat de qualification professionnelle*) and Certificates of professional skills (*CCP, Certificat de compétences professionnelles*) created by professional branches and open badges.

Country	Nationally used terms
Germany	Additional qualifications (*Zusatzqualifikationen*), partial qualifications (*Teilqualifikationen*), CVET qualifications regulated by the chambers (*Kammerregelungen*), IT, language and welding certificates. In higher education there are certificate courses (*Zertifikatskurse*), micro-degrees and badges.
Greece	Continuing education, training courses, training programmes, online seminars, IT and language certificates
Hungary	Higher education: short training programmes, modules, badges. Adult education offers short-cycle training courses providing reskilling, further training for low-skilled and disadvantaged employees. There are also add-on qualification courses, competence development training, partial qualifications, specialisation training, specific training, job-specific training, company training, etc.
Ireland	Micro-qualification, digital badge, minor award, special-purpose award and supplemental award.
Iceland	The term and method most commonly used, for the purpose of labour market education and training, is continuing education.
Italy	There are micro-qualifications at regional level, including individual units of competence that can be separately certified and included within regional repositories and in the National Repository. Micro-qualification can be used in continuing training for workers, adult upskilling and reskilling, secondary education and adult education. In higher education there are nano degrees, open and digital badge.
Latvia	Certified short-term training courses (typically up to 160 hours, leading to a partial qualification).
Lithuania	Modules of formal vocational education and training programmes, certificates, digital badges, micro masters, nano-degrees
Malta	Awards
Netherlands	Microcredentials, edubadges VET optional subjects (*keuzedelen*) with a weight of 240 study hours at EQF level 3 and 4 and VET-certificates related to some optional subjects and open badges.
Norway	Micro-topics (*mikroemner*)/micocredentials (*mini-kvalifikasjoner*), modules, courses and short study units.
Poland	Micro-references (*mikroreferencje*), micro-qualifications (*mikrokwalifikacje*), microcredentials (*mikropoświadczenia*) or credentials (in higher education), open/digital badges for MOOCs and market qualifications (those small enough to be considered microcredentials).
Portugal	Partial certifications (*Certificações Parciais*), small training units (*UFCD)*, *ACD*, modular training (*Formação Modular)*, recognition of prior learning (*RVCC)*, short term training (*formações de curta duração*).
Romania	Partial qualification (*Calificare partiala).*

Country	Nationally used terms
Slovakia	Micro-certificate (*mikroosvedčenie*), modules of accredited programmes registered in the accreditation system of further education programmes, Certificate clause.
Slovenia	Supplementary qualifications (*Dodatne kvalifikacije*), CVET short programmes on EQF levels 4 and 5, study programmes for further training on EQF levels 6 and 8, exam certificate (*potrdilo o izpitu*), certificate of completed obligations (*potrdilo o opravljenih obveznostih*), certificate of professional examination (*potrdilo o strokovnem izpitu*), certificates (*certifikati*).
Spain	Microcredentials (in VET). Non-formal short duration learning, leading to attainment diplomas or certificates of attendance, short courses, international IT certificates, sectoral professional cards, microcredentials and micro-modules (in higher education also related to MOOCs), In teacher professional development, there are open digital microcredentials and the Open badge backpack (a digital service currently used to issue badges based on the successful completion of open massive online training)
Sweden	Course (*Delkurs)*, partial qualification (*delkvalifikation)*, course (*kurser*), open badges, short polytechnic education (*korta yrkeshögskoleutbildningar*), microcredential (*mikromerit/er*), modules

Source: Survey of stakeholders representing national authorities and ReferNet questionnaires (Cedefop, 2021a).

The case studies confirmed that short education and training activities often exist under a variety of names, which differ between countries, and even within the same country, between various education and professional sectors (Table 4).

Table 2. **Perceptions of microcredentials in the eight case study countries**

Country	Defining microcredentials in national contexts
Finland	Various types of microcredentials have been introduced as part of reforms of VET and continuous learning. In VET, microcredentials are considered smaller fractions of competence sets. For example, the actual term microcredential is significantly less known in Finland than the concept of 'digital open badges', which have similar characteristics focusing on actual learning outcomes. The most prevalent definition of microcredentials in Finland suggests that they are viewed as a means to explore the introduction of short-cycle tertiary education (Finnish National Agency for Education, EDUFI, 2020); (OECD, 2020). Interviewees highlighted two particularly good examples of short-term education and training: smaller units of qualification requirements in VET: open university and open universities of applied sciences. These studies are available during the daytime, evenings and weekends and on the web at most education institutions across Finland. A variety of options allow learners to collect individual study units or accomplish bigger study modules

Country	Defining microcredentials in national contexts
France	Questions and misunderstandings exist about microcredentials. Part of the problem is the French translation of microcredentials into 'micro-qualification' (*micro-certifications* in French), but also the lack of a common and shared definition around it. The introduction of microcredentials into a particularly complex, highly structured and evolving qualifications framework is confusing for the various stakeholders. For example, the term 'micro' could either refer to the duration of the training or to the fact that microcredentials are a component of a qualification. In France, there are no official documents that address the issue of their development and recognition within the education system: no description of microcredentials exists in the French legal framework. It is left to international or private sources such as training organisations to specify the description. Often, microcredentials are regarded as being like open badges. Etymologically, in this case we would rather use the terms *micro-justificatives* or *micro-certificates*. Finally, the term micro-certification can be considered as part of a qualification broken down into micro blocks, but the use of the term certification may be problematic. Given the misunderstandings that have surrounded the introduction of microcredentials, experts have recently attempted to specify their scope. AFDET (*Association Française pour le Développement de l'Enseignement Technique*) proposes a definition of microcredentials, translated into French as *micro-certifications*: 'Each *micro-certification* is designed to be displayed as soon as 'mastery of a specific skill' is achieved. They can be awarded, for example, by a training organisation following participation in a training course'(Kastler, 2021).
Germany	Microcredentials are considered as very short learning units and supplemental training that leads to a certificate in the unregulated (private) VET sector, attesting learning outcomes. Similarities between microcredentials and certified courses for additional training or partial vocational qualifications in the regulated sector were also identified. The latter are embedded in the national VET system and lead to nationally recognised qualifications for a profession.

Country	Defining microcredentials in national contexts
Ireland	No official definition of microcredentials currently exists in policy documents. Such terms are not generally safeguarded in legislation, allowing certain underlying flexibilities within the system. The qualifications authority (QQI) has a working definition. In a press release in January 2021, it was stated that microcredentials are units of assessment that are smaller than traditional programmes of learning such as degrees and diplomas (QQI, 2021). They demonstrate that a learner has mastered a certain skillset or demonstrated a level of achievement in a particular area. Meanwhile, a recent QQI technical discussion paper on the qualifications system gave this definition in its glossary: 'microcredential is a qualification that attests to a small-volume, highly specific learning achievement. The term often arises in the context of digital badges' (QQI, 2020). In the food sector, a digital badge or microcredential is an image, icon or indicator of an accomplishment that can be verified online. These can be awarded for short courses that meet certain verified criteria. Unlike a certificate of attendance, digital badges offer tangible and practical awards for employees who are continuing to develop their skills. Digital badges are a type of digital credential and fall under the umbrella term 'microcredentials'. Microcredentials are digital credentials. They encompass digital badges, web badges, nano-degrees, mini-degrees and micro-certifications (Corrigan-Matthews and Troy, 2019).
Netherlands	According to SURF ([10]), there are two categories of badges: open badges and edubadges. Open badges represent informal learning activities, such as community work or participating in competitions, while edubadges resemble formal learning activities, where 'formal' means that credits in the European credit transfer and accumulation system (ECTS) are granted for such learning activities. The term 'edubadges' can be interpreted as microcredentials. According to SURF an edubadge is an electronic certificate that provides detailed information on the content of the learning outcomes achieved. A relevant platform is developed. The initiative is in pilot phase and carried out mainly by higher education but also four VET institutions (Box 4).

([10]) SURF is the collaborative organisation for IT in Dutch education and research.

Country	Defining microcredentials in national contexts
Poland	The term microcredentials is relatively new in Poland, and its meaning is somewhat vague, mainly due to the variety of their forms and the lack of a commonly shared definition. The term has been already translated into Polish (*mikro-poświadczenia*), but it is rarely used. The concept refers to a range of documents – or to even more broadly defined means of recording and representing an individual's skills – which serve to prove that the holder possesses specific skills. Alternative credentials, open badges, digital badges, are gaining importance as effective professional development tools and essential elements of life-long learning. Microcredentials are better known in higher education, where they are associated with MOOCs. Digital badges are more often used in the private sector. Some market qualifications ([11]) are small enough to be considered microcredentials (Stęchły and Nowakowski, 2021).
Slovenia	No commonly agreed and official definition of microcredentials yet exists at national level in Slovenia. Representatives of national authorities, as well as VET providers, mentioned short formal and non-formal education and training programmes such as supplementary qualifications and CVET short programmes. They mainly serve as a means for upskilling, reskilling and updating knowledge. In higher education, the term microcredentials is used to describe regulated study programmes for further training at EQF levels 6-8 and various forms of non-formal learning.

([11]) Market qualifications are included in the Integrated Qualifications System (IQS) and the NQF, provided they meet specific formal requirements. They are developed and awarded by various social organisations, associations, professional groups or companies.

Country	Defining microcredentials in national contexts
Spain	There is an overall agreement that microcredentials certify the learning outcomes acquired following a short learning experience. The organic law on VET, approved in March 2022, describes microcredentials as a proof of the learning outcomes a learner has acquired following a short learning experience. Learning outcomes refer to concrete skills; they will be defined in the forthcoming national Catalogue of Vocational Competence Standards (*Catálogo Nacional de Estándares de Competencias Profesionales*) which will replace the existing Qualifications Catalogue (*Catálogo de Cualificaciones*). Micro-training will be related to competence standards, a smaller reference than the current qualifications. Microcredentials will initially lead to a non-formal vocational certificate. Subsequently, learners can acquire a VET diploma through further accumulation of microcredentials. As a result, microcredentials are understood as an element or part of formal VET studies. The law also states that all training will be accreditable, accumulated and stackable. Depending on whether the training addresses one competence standard, various training modules, or a complete training cycle, they will range from micro-training to vocational training qualifications. All training should be embedded into training pathways leading to accreditation, certification and qualifications acknowledged in Spain and the EU. A Royal Decree, approved in September 2021, states that universities can deliver training of less than 15 ECTS that may require a previous university degree, in the form of microcredentials or micro-modules. Thus, universities are able to provide certified learning results linked to short-term training activities. These courses are part of lifelong learning and have the purpose of updating or training in new skills or knowledge but are not part of a diploma. They are open to graduate or undergraduate students of all ages. In contrast to the definition proposed by the Ministry of Education, microcredentials are not defined as part of graduate studies and will not contribute towards a graduate diploma. According to the Public Employment Service (SEPE) and the national Foundation for Training for Employment (FUNDAE), microcredentials are also envisaged to certify achieved learning outcomes through a short learning experience. In the future, learning outcomes could be associated with the skills defined in the Catalogue of Training Specialities (*Catálogo de Especialidades Formativas*) managed by SEPE, following non-formal training. Microcredentials are thus understood as a proof of an employee's skills that have value in the labour market.

Source: Prepared by Cedefop, based on case studies.

3.1.2. Learning activities and certification of learning

Two aspects of microcredentials can contribute (when not properly differentiated) to deepening the confusion around the term:

(a) microcredentials as learning activities, regardless of their exact volume and duration;

(b) microcredentials as proofs/records of achieved learning outcomes.

For example, some professional/industrial certificates can be obtained upon passing competence-based assessments without the need to complete structured learning activities. Classifying them as microcredentials will depend on how we perceive microcredentials; as learning activities of limited length, as a proof of demonstrating professional/technical competence, or both. Digital badges that are awarded upon the recognition of prior learning, or as demonstration of the possession of particular competences, are also relevant to this discussion.

The Finnish case study (Cedefop, forthcoming-a) stressed the importance of distinguishing learning opportunities from learning outcomes. In Denmark, microcredentials refer both to learning activities and to the certification of learning. They can refer to learning activities leading to a certification awarded following an assessment or the certification that learners obtain after completing a course. It can be in the form of a paper or digital certificate. In Norway, two terms have been introduced, one for the courses, micro-topics (*mikroemner*), and one for the credentials (*mini-kvalifikasjoner*) (Cedefop, 2021a).

Linking microcredentials to the achievement of specific learning outcomes or competences can positionally facilitate their integration in national/regional qualifications frameworks. It can also be a tool to recognise prior learning. It can preserve and enhance the flexibility of microcredential offerings that would vary in size, duration, content, mode of delivery, but it would not matter as long as the learner is able to demonstrate a certain level of competence to earn a microcredential.

3.1.3. Links between modularisation and microcredentials

Increasingly, VET programmes that are designed for, and lead to, a specific qualification are becoming modularised; they are expressed in terms of learning outcomes, grouped into smaller units (Cedefop, 2015). Modularisation is also seen as a way of providing individual learners with greater flexibility to pursue more personalised and flexible learning pathways. The main purposes and objectives of microcredentials seem to echo this goal of modularised learning, which partly explains why, in many countries, certificates relating to parts of qualifications or modules, are often associated with microcredentials. For example, in Denmark, in CVET courses focusing on the labour market (AMU system), modules are well developed and recognised and could potentially form the basis for initiatives using microcredentials (Cedefop, 2021a). In Spain, VET is modular and, according to the new law, although microcredentials initially lead to a non-formal vocational certificate, they can be accumulated and lead to a VET diploma; thus they are understood as an element of formal VET studies (Cedefop, forthcoming-f). In Latvia, according to the amendments to the VET Law, adopted on 15 March 2022,

every completed module leads to a certificate that can be used either independently or for building-up a qualification. This is considered as a policy measure that introduces micro-qualifications and related principles in vocational education (both secondary and higher) even without mentioning the term micro-qualification (Cedefop, 2021a). In Czechia, the effort to modularise initial VET programmes ([12]) could be considered the closest to the concept of microcredentials (Cedefop, 2021a).

However, there is no uniform approach to the relationship between microcredentials and modules. Experts participating in the study explained that microcredentials should not only be identified as deconstructed qualifications but should also refer to something supplementary to the existing system. According to some of them, learning activities leading to microcredentials should be independently designed and standalone.

3.1.4. Novelty or old wine with new label?

When it comes to whether microcredentials present a new way of recognising learning experiences and outcomes, the study revealed a mixed landscape among EU 27+ countries.

Source: Microcredentials – a new opportunity for lifelong learning? Cedefop news item, 28.1.2022.

([12]) This is being done through an ESF project entitled Modernisation of VET 2017-20.

On one hand there are countries like Cyprus, Czechia, Greece, Iceland and Portugal where microcredentials are a relatively new development, especially regarding formal education. On the other hand, there are countries like Ireland and Malta with a well-established tradition, even though the actual term is not widespread.

The wide variety of terms and practices identified at national level and associated with microcredentials, or even fitting the working definition of the European Commission, indicates that, up to a point, the phenomenon is already real. Many national voices express the view that microcredentials are not new, or raise the concern of needless rebranding of well-functioning existing practices. In Ireland, from the perspective of the qualifications system, microcredentials as a label is new but nothing else about them is (Cedefop, forthcoming-c), while in Finland they are perceived as a novel way to understand existing structures rather than creating something new (Cedefop, 2021a). In Slovakia, it is highlighted that it is not of essential importance to enter into a debate about renaming certificates that are equivalent to microcredentials, especially when these practices are well-developed and quality assured, such as in the welding and nuclear energy sectors. The same concern was echoed in Slovenia (Cedefop, 2021a).

At the same time, the study revealed that microcredentials are a growing phenomenon, cover a constantly larger part of the policy agenda, are linked to innovations in learning, and usually addresses different needs of end users from traditional qualifications. In Slovakia, it is mentioned that the microcredential initiative should primarily focus on better understanding incoming changes induced by innovations and technological progress that should translate, when necessary, into enriching qualification systems (Cedefop, 2021a).

3.1.5. Tight versus loose definition

A key issue relating to the way microcredentials might be defined is whether ‘tight’ or ‘loose’ definitions should be created and applied nationally. According to the study findings, opinions are divided as to whether the definition should be specified and standardised in greater detail, or whether a broader, more open and flexible approach is required. On one hand, leaving the term flexible and broad would allow the system to operate more freely and to include different types of learning activities under the umbrella of microcredentials. Supporters of this approach believe this is the way to maintain the attractiveness and flexibility of microcredentials. To illustrate this, a trade union representative from Finland indicated that the definition should be as broad as possible because the needs of various contexts and situations are very different. Thus, a broad definition would allow room for different types of microcredentials to emerge and operate.

According to advocates of a loose definition, instead of trying to pinpoint specific details such as the number of credits, the focus should be on identifying why microcredentials are needed, by whom, and for what reasons. A universal definition would, in their opinion, create the risk of putting microcredentials into narrow boxes and overlook what actually exists or is needed in specific contexts. Such an approach, they argue, risks restricting them to a specific (and potentially small) subgroup of short education and training offerings, as well as limiting both the creativity and flexibility of existing ones. Similar ideas were also expressed during the Cedefop conference on microcredentials which took place on 25 and 26 November 2021. In contrast, supporters of a tight definition noted that greater standardisation, more specific definitions and technical descriptions for microcredentials are needed (e.g. agreeing on the number of credit points). Under this scenario, a subcategory of short and targeted learning activities could also be established that would expect to enjoy a sufficient level of trust and quality assurance. However, microcredentials might end up in a similar place to some of the existing professional/industrial certifications, which are fairly rigid in their requirements.

Consequently, a common language or even common principles would be desirable to heighten trust, transparency and transferability of microcredentials and enrich their currency and exchange value for learners, education institutions and employers. At the same time, their attractiveness should not be jeopardised by limiting their flexibility and responsiveness to labour market needs through rigid standardisation, as expressed in Box 1.

Box 1. **Fostering trust and transparency without compromising the flexibility of microcredentials**

‘Microcredentials are evidence of practical, flexible, on-demand, and short learning experiences. This is what makes them so attractive. Common European standards must preserve this attractiveness and not limit it through overregulation and formalisation. It is thus central to find an appropriate balance between fostering trust and transparency as part of a common approach without compromising the flexibility of microcredentials’.

Source: Employers organisations survey, Germany.

3.2. Microcredential context: emergence and operation

Key findings

- Microcredentials have only recently gained Europe-wide attention in policy discussions.
- The term microcredential is rarely included per se in strategic, legal or official documents.
- There are indications that system or broader policy developments ease the expansion of microcredentials.

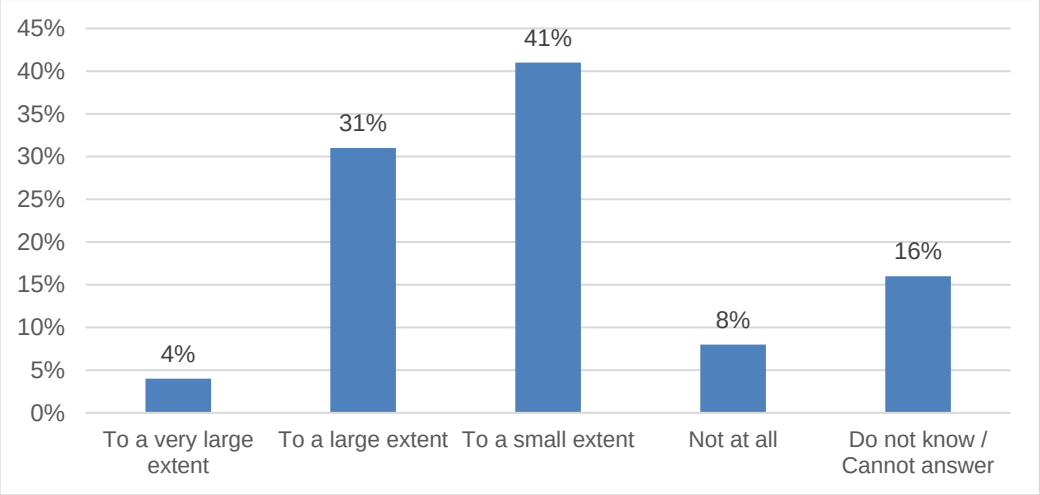
In broad terms, there are three groups of countries when it comes to the extent that discussions on microcredentials have evolved. Often, policy discussions are at an initial stage, while they are more advanced in some countries, exploring the phenomenon in detail or aiming to include microcredentials in official documents. In a third group of countries recent legislation or draft regulations have been already introduced.

The study also explored the familiarity of various stakeholders with microcredentials. For example, despite being a rather novel concept, most respondents representing employer and employee organisations were familiar with the term. Familiarity was higher among organisations representing employers (73%) compared with those representing employees (54%).

3.2.1. Policy discussions on microcredentials

According to the study findings, microcredentials have only recently gained Europe-wide attention in policy debates. Nevertheless, the majority of stakeholders (76%) representing national authorities stated that they are referred to in policy discussions at national level, at least to some extent (Figure 7).

Figure 7. **To what extent are microcredentials referred to in national policy discussions? (% of respondents)**



NB: Three responses for 'To a very large extent', 23 responses for 'to a large extent', 30 responses for 'To a small extent', six responses for 'Not at all' and 12 responses for 'Do not know/Cannot answer'.

Source: Survey for stakeholder representing national authorities (n=74).

Policy discussions on the issue have already been launched in almost all EU-27+ countries ([13]). In some Member States discussions are at an initial stage. In Bulgaria, Czechia, Greece and Portugal discussions are limited, often taking place within the education system and the term is not equally understood by different VET stakeholders, though in Czechia employer representatives are actively participating (Cedefop, 2021a).

In specific countries the discussion is more advanced, as in Belgium, Finland, and the Netherlands microcredentials are being actively discussed at national level, exploring the possibility to include them in official documents. The Dutch VET policy was revised during the last government period (2017-21) to prioritise flexibilisation of educational programmes for jobseekers and employed adults as well as create more opportunities for lifelong learning. In Poland, Slovenia and Finland, consultation groups have been formed by the education ministries. In Norway, quality assurance, credits, recognition of microcredentials and the way to incorporate them in the country's educational landscape are central points of discussion (Cedefop, 2021a).

The launch of the consultation on microcredentials by the European Commission has triggered (further) discussions in several Member States. In Slovenia, the education ministry formed an internal consultation group to develop a position paper focusing on higher education and higher VET. In the Netherlands

([13]) Data from Austria and Luxembourg are unavailable.

it stimulated discussions on embedding microcredentials in VET, while in Portugal and Slovakia it introduced the concept in national discussions (Cedefop, 2021a).

Box 2. **Sweden: pilot on microcredentials**

The Research Institutes of Sweden (RI.SE), the National Agency for Higher Vocational Education (MYH), and Digital Infrastructure of the Swedish Public Employment Service (AF JobTech) have set up a pilot, aiming to identify the aspects of microcredentials which are actually new. They also look at quality assurance mechanisms and explore how learning outcomes of shorter informal learning can be described, recognised, stacked, and become portable and part of qualifications. Another goal is to explore what users attribute to the concept, to develop from this a standardised definition. The work involves business, academia, civil society, and public stakeholders.

A working concept is to operationalise microcredentials as the documented learning outcomes of quality-controlled short-duration learning. As such, they could be a module or building block of a qualification. Minimum time of one ECTS point has been discussed but there is not yet any minimum time of learning.

Source: (Cedefop, 2021a).

3.2.2. Microcredentials in policy documents

Even though national authorities increasingly refer to microcredentials in policy discussions, they do not yet appear prominently in strategic policy documents. This is largely explained by their novelty in both national and European contexts. This view is supported by the survey data, where only 36% of respondents representing national authorities indicated that microcredentials are referred to in strategic policy documents in their country. A large proportion of survey respondents (30%) said they were unsure about the topic and could not answer the question ([14]).

As indicated in the country's case study (Cedefop, forthcoming-f), Spain has already approved an organic law, including microcredentials as part of formal VET (Table 3). In Estonia, in late 2020 a concept paper on micro-qualifications was developed; in May 2021 the study *Possibilities for the introduction of micro-qualifications in the Estonian education system and qualifications system based on international practice* was published. Subsequently, the education ministry launched a regulatory process to amend the Adult Education Act in order to provide the definition of micro-qualifications, set the volume of study programmes leading to microcredentials, principles of provision and a quality assurance mechanism.

([14]) These results were partly explained by participants in the study, mentioning that different interpretations of microcredentials exist; in cases where module certificates or other partial qualifications are considered to be microcredentials, their inclusion in the strategic documents is expected as they are already part of the qualifications systems.

The ministry aims to expand the concept of microcredentials beyond higher education and proposed the term micro-qualification ([15]) to be used by all parties as a general term (Cedefop, 2021a). In Croatia, in late 2021, the new Adult Education Act introduced the term 'micro-qualification' (*mikrokvalifikacija*) (units of learning outcomes) in formal adult education programmes. The units of learning outcomes will be part of short training, professional development and VET specialist development programmes, and they may lead to a micro-qualification. These programmes will be included in the NQF; they may lead to partial qualifications and, exceptionally, to full qualifications (Cedefop, 2021a). In Italy' micro-qualifications is a more relevant term to the national context than microcredentials: they are considered as 'qualifications composed of one or more competences, constituting broader qualifications, awarded, within the National system of competence certification, as part of a wider qualification issued at the end of short-term and modular learning pathways' ([16]).In Slovakia the 2021 Lifelong learning and counselling strategy 2021-30 is the first policy paper that explicitly mentions microcredentials (micro-certificates in the national context) as a tool to increase the flexibility of the qualifications system (Cedefop, 2021a).

The case studies showed that the term 'microcredential' is rarely included in strategic documents; they rather focus on various types of credentials or short learning activities for the purposes of lifelong learning, reskilling and upskilling, aiming to open up or extend training offers (a common objective with microcredentials). Table 3 provides summaries of national policy discussions and strategic documents from the eight case studies.

([15]) According to the definition under discussion, micro-qualifications are: a type of adult education and training in the context of lifelong learning, and a part of the qualification system; complementary to, a substitute for, or a part of formal education, or part of a professional qualification; able to be combined and accumulated to demonstrate the acquisition of a full qualification; competences of independent value in the labour market.

([16]) Italian Referencing Report of the qualifications to the European qualifications framework update: 2021 – Maintenance: 2021.

Table 3. **Microcredentials in policy discussions and strategic documents**

Country	Summary of national policy discussions and strategic documents
Finland	The Finnish National Agency for Education (EDUFI) and the Ministry of Education (MINEDU) have opened discussions on microcredentials as a means to explore the introduction of short-cycle education and training. The current debate regarding microcredentials as smaller fractions of competence also examines options to restructure degree programmes into smaller entities in terms of continuous learning. On a larger scale, these approaches relate to education reforms and could promote a digital learning ecosystem based around life events, offering customer-centred services. In March 2021, the education ministry invited a task force meeting to build a shared understanding of what microcredentialing means in terms of short-cycle education and training, and smaller fractions of competence in continuous learning (Finland. Government, 2020). The task force (Finland. Government, 2021) raised the following questions: (a) are short-cycle courses something new that should be promoted in education and training? (b) how could smaller fractions of competence support the visibility of workplace learning? (c) how could smaller fractions of competence inform and improve lifelong learning and achieved competences?
France	The issue of microcredentials is important in transforming vocational training. While definitions are lacking, it can be said that the French qualification structure has embarked on a route that largely accommodates the microcredential model. Thus, microcredentials could be compatible with the way vocational training has been developed since the mid-2010s. One of the consequences of the 2018 law ([17]) is the liberalisation of the training market. In this context, there has been an increase in the number of vocational qualifications issued by private bodies. While forms of regulation have been put in place to ensure the quality of the education and training offered, the opening up of the training market contributes to the integration of microcredentials.

([17]) LOI n° 2018-771 du 5 septembre 2018 pour la liberté de choisir son avenir professionnel [Law 2018-771 for the freedom to choose a vocational future]. https://www.legifrance.gouv.fr/dossierlegislatif/JORFDOLE000036847202/

Country	Summary of national policy discussions and strategic documents
Germany	In 2021 the Federal Ministry of Education (BMBF) developed a position paper concerning microcredentials in VET in Germany and submitted it for public consultation by the European Commission. It was made available to a wide range of stakeholders at national level. The German Higher Education Rectors' Conference (HRK) has already published a basic position paper (HRK, 2020) for discussion on the introduction of microcredentials in higher education (this also refers to teacher education for VET). Trade unions were discussing in 2021 whether additional criteria are required in Germany in order to allow and assess new offers in VET, such as microcredentials, as well as how non-formal qualifications should be validated in future. This is not just a question of inclusion into the German qualifications framework (DQR). Further discussion is required on how the validation of microcredentials can take place: how will the quality of vocational education be assessed, how will providers of vocational education be evaluated, and who will carry out such assessments? In addition to these discussions, nationwide initiatives Jobstarter-Connect and Jobstarter are attempting to open new pathways in VET via training supplements (training modules, certified short courses). This offer is embedded in the existing system of VET in Germany. If such additional training is successfully completed, it can be credited towards subsequent qualifications, such as courses of study, through the recognition of credit points.
Ireland	In 2019, the State agency responsible for further education and training (SOLAS) adopted its strategy for 2020-24 (Future FET: transforming learning), which appears to be the first time microcredentials have been specifically mentioned at a policy/strategy level in Ireland. Here, microcredentials are framed as a further education and training (FET) resource for enterprises and employees, while also facilitating pathways for lifelong learning, and supporting recognition of prior learning processes: ‘use of digital badging and microcredentialling will be important as we move into an era of FET provision which can be tailored to meet the needs of learners and employers, and can be made available in bite-sized chunks to facilitate accessibility’ (SOLAS, 2020).

Country	Summary of national policy discussions and strategic documents
Netherlands	In the Netherlands, microcredentials (nationally referred as *edubadges*) are a piece of the puzzle on the road to more flexible education and lifelong learning. In 2015, a motion was successfully submitted in which members of the Dutch parliament requested greater flexibility in higher and vocational education. Flexibility, in this context, means that education programmes are cut in smaller pieces and that learners or professionals can take one such small piece and gain recognition for meeting its requirements. This would come in addition to learners gaining recognition in the form of a diploma, meaning that they have completed the whole programme. The Edubadges pilot was put in place to create this flexibility and give learners (and professionals) official recognition for those parts of an educational programme they have successfully completed (Box 4). These smaller pieces enable professionals to take certain educational elements and motivate them to continue learning without committing to an entire programme; thus, edubadges are also considered an accelerator of lifelong learning. Policy mainly encourages roads towards flexibility and lifelong learning, facilitated by funds for experimentation.
Poland	The detailed part of the Integrated skills strategy 2030 ([18]) (ISS 2030), published in 2020, has the status of a public policy. It is the essential document indicating strategic goals and actions regarding lifelong learning and the development of skills. Even though the strategy does not mention the term microcredentials, clear references to the concept can be found. One of its main goals is the 'improvement of systemic solutions facilitating access to various forms of learning and enabling the recognition and certification of learning outcomes, regardless of how these outcomes were obtained' by 'developing and promoting validation and certification, including digitisation of accumulation and recognition of achievements'. The microcredentials debate continues at the Educational Research Institute, which plays a crucial role in supporting the implementation of the Polish Integrated Qualification System (IQS). EU co-financed projects are the main initiatives regarding microcredentials. The main project is Badge+, which will develop a tool to digitise the staged process of collecting and recognising achievements in the IQS. The role of this tool is to support IQS end- users in organising their learning experiences. Experiences gathered in this way can lead to a market qualification. The development of the tool will be supported by social research.
Slovenia	Although strategic documents do not incorporate the term microcredentials per se, other similar types of qualifications are part of them. Policy discussions, among various groups of stakeholders, regarding microcredentials are diverse. Discussions at the Ministry for Education focus on the integration of microcredentials into lifelong learning policies, as they are considered to be primarily linked to adult education and strongly promote upskilling and reskilling.

([18]) See the overall strategy and the detailed part of the strategy.

Country	Summary of national policy discussions and strategic documents
Spain	Through intensive regulatory activity two complementary microcredential systems in vocational and higher education were developed. In addition, employment authorities are designing a system for microcredentials in non-formal training for employment (Table 4).

Source: Prepared by Cedefop, based on case studies.

3.2.3. Activities relating to microcredentials

A range of activities is taking place at national level, alongside policy discussions, including projects to test microcredentials. Dedicated funding for the development of certified short learning activities is also available. According to the survey of national authorities, the most common national activities taking place include policy initiatives and projects ([19]) and the issuing of microcredentials by private providers that are integrated into national education and training provision (e.g. in ICT). Significantly, 22% of respondents indicated that no activities currently take place in relation to microcredentials; 35% of respondents were unaware of activities that are currently taking place at national level. These responses support that microcredentials are not a well-established practice in many Member States and the uncertainty about the term. Activities relating to microcredentials comprise integrating them into the national qualifications system or framework; collecting data; and including microcredentials and information about them in a central register.

Table 4. **Examples of activities relating to microcredentials at national level**

Country	Main activities
Belgium (Flemish Community)	The Flemish Community in Belgium is coordinating the MICROBOL project in the EHEA. Policy-level discussions are taking place, involving the relevant stakeholders at different levels of education.
Bulgaria	National/regional authorities are collecting data on microcredentials, including them and information about them in a central register. Those issued by private providers are being integrated into national/regional education and training provision (e.g. ICT certifications).
Iceland	Iceland is in the process of integrating microcredentials into its national qualifications framework for higher education

([19]) As reported by 31% of respondents.

Country	Main activities
Lithuania	Data on VET modules is stored in national registries.
Malta	In the national context, awards are considered as microcredentials. Thus, reported activities include: (a) data collection on microcredentials by national/regional authorities; (b) a central registry on microcredentials is constantly being updated; (c) microcredentials issued by private providers are integrated in national/regional education and training provision (e.g. ICT certifications) (d) National/regional policy initiatives and projects on microcredentials are carried out.
Romania	In 2021, legislation was being drafted, defining microcredentials, as well as how to obtain and use them in CVET.
Sweden	Microcredentials are being discussed in relation to the digital infrastructure for lifelong learning and skill supply. Data are being collected within the formal education system.

Source: Survey of stakeholders representing national authorities.

A pilot initiative, illustrating the progress towards introducing microcredentials, is being launched in the Netherlands. An edubadges platform has been developed, where digital certificates can be stored, serving the Dutch education and training community (Box 3).

Box 3. **The Dutch edubadges platform**

Edubadges is the digital certificates platform for the Dutch education and training community. Edubadges enables organisations to award learners or workers with evidence of the knowledge, skills and competences they have acquired. An edubadge is an electronic certificate that provides detailed information on the content of the learning outcomes achieved. It is issued electronically within the secure and trusted SURFeduhub platform ([20]). Students collect edubadges in a dedicated 'backpack' and can share an edubadge with employers or other education institutions. The platform offers features for its different users as follows: institutions can create, edit and issue edubadges; learners and workers can access their edubadges backpack, in which they can keep all of the edubadges they have received, as well as sharing edubadges electronically with employers or other institutions; external parties can verify and authenticate edubadges.

Source: SURF.

([20]) SURFeduhub is the platform for sharing educational data between Dutch educational institutions.

3.2.4. Paving the way to mainstream microcredentials

Although uncertainty is a main characteristic of microcredentials, study findings revealed some indications that systems or broader policy developments ease their expansion. In many countries, modularisation of VET programmes, up to a certain extent, sets the scene for introducing and expanding microcredentials. The example of the new law in Latvia and the way it is perceived, illustrates how they can be associated with modules.

The French case study (Cedefop, forthcoming-b) identified that the country's qualifications structure has embarked on a route that largely accommodates the microcredential model, encouraging the development of short training activities/courses that are easily accessible to learners. Skills or qualification portfolios (e-portfolio) are tools that promote the introduction of microcredentials, so there is potential for them to be integrated into this general framework. Further, microcredentials are aligned with the digitalisation movement that is gaining momentum within the French VET system. Experts interviewed mentioned that, in the context of liberalising the country's VET market, microcredentials carry the promise of an intriguing market with great expansion potential (Cedefop, forthcoming-b).

The Polish Integrated Qualification System (IQS) provides a friendly institutional environment for microcredentials. However, high quality assurance standards set within the system and the challenging process of adding a market qualification to the IQS pose significant barriers for many microcredentials. On the other hand, they may bring added value for IQS, spreading the idea of IQS and adding new qualifications to the system (Cedefop, forthcoming-d).

A number of initiatives and policy actions also contribute to bringing microcredentials to the fore. There is the pilot in Sweden, aiming to conceptualise the phenomenon in the country (Box 2). In Greece, the Supreme Council for Civil Personnel Selection (ASEP), includes in the selection process evidence of microcredentials in computer skills and foreign languages competences. When needed, applicants should provide certificates on computer skills and knowledge of foreign languages to be eligible to participate (Cedefop, 2021a). In Czechia, a pilot in initial VET is aiming at recognising international ICT certification standards within the profile part of the *maturita* examination (Cedefop, 2021a).

Box 4. **Microcredentials in Ireland**

Microcredentials in labour-market-related education and training have a long history in the country, existing in the form of short courses and certificates long before the introduction of the term. They are included in the NQF since its establishment in 2003 and widely available, mainly to adults but also as part of some IVET programmes. There is much variation in their size and 'shape', in who offers and uses them, and, crucially, in the quality standards that underpin them. Microcredentials in the form of vendor-specific and vendor-neutral certificates have an important role to play in some sectors, notably ICT.

The country's system and culture around qualifications are ready to accommodate microcredentials, while they are seen by many labour market stakeholders as 'a critical component in deploying the learning programmes of the future' (Nic Giolla Mhichíl et al., 2020).

QQI specifies that 'the NFQ's minor, special purpose and supplemental award-types are examples of prototype microcredentials and perhaps meso-credentials, though microcredentials can be smaller even than minor awards' ([21]). QQI adds that microcredentials 'don't necessarily need to be part of a larger volume qualification though they can be aggregated and potentially used in recognition of prior learning processes to gain exemptions from parts of, and advanced entry to, programmes leading to NFQ qualifications'. QQI concludes that 'there is undoubtedly a necessity for people to be able to complete selected parts of larger programmes that may be of interest. Arguably the educational process (and associated learning) is more important than the credential, but a microcredential (e.g. minor award) is a useful way of formally recording the achievement and it may add weight to a CV. Digital badges can help make microcredentials more valuable and therefore more attractive' (Quality and Qualifications Ireland (QQI), 2020).

Source: Cedefop [forthcoming].

3.3. Distinguishing features of microcredentials

The features that distinguish a microcredential are far from uniformly agreed. But, while the features of individual microcredentials vary, the practices analysed indicate several overarching features that apply to most. In this section, we try to explore the distinguishing features (compared to the definition of qualifications as provided by the 2017 EQF-Recommendation) as regards the following aspects:

(a) learning outcomes/competences;
(b) learning/teaching delivery formats;
(c) use of credits/workload;
(d) standards/assessment;
(e) format (digital or paper);

([21]) At EQF level 4 and 5 the norm for minor awards is 15 credits and the minimum is five with one credit equalling 10 hours of effort. In FET the minimum size for an award is five credits, while smaller microcredentials are usually digital badges.

(f) quality assurance.

3.3.1. Main characteristics of microcredentials

Key findings

- Microcredentials most commonly display the title and date of issue, the holder's and provider's identity, as well as the achieved learning outcomes.
- Classroom-based learning is a common mode of delivery of microcredentials.
- Assessment is usually an in-house process but is also undertaken by independent assessors.

According to the literature review, critical information elements are crucial to ensuring that end users, including learners and employers as well as education and training institutions, understand what microcredentials signal and entail (Oliver, 2019). Such elements foster trust, transparency and transferability of microcredentials, increasing their exchange value. Scholars (Oliver, 2019) also suggest that microcredentials must be transparent and understandable and should include summary of critical information such as:

(a) the title;
(b) the duration of a learning activity;
(c) provider of the course;
(d) description of the content;
(e) learning resources;
(f) type of assessment;
(g) credits attributed to the course;
(h) prerequisites needed for enrolment;
(i) learning outcomes;
(j) body ensuring the quality of the course;
(k) options for stackability, if any.

The study showed that the information elements included in microcredentials issued by VET providers within and outside formal education and training systems vary. However, the most common information elements are identical, regardless of whether the microcredential is issued by a VET provider, an employer or an employee organisation. Microcredentials usually display the title and date of issue, the identity of the holder and provider, as well as the learning outcomes achieved. The tables below provide an overview of the elements that are most commonly included when issuing microcredentials, as well as those that are least commonly included, across different stakeholder groups.

Table 5. **Elements most often included in a microcredential**

VET providers (n=87)	% of total responses	Count
Date of issue is specified	59%	51
The holder is identified	55%	48
Title of a microcredential is specified	54%	47
Awarding body is specified	47%	41
Learning outcomes are specified	44%	38
Employers' organisations (n=16)	**% of total responses**	**Count**
Awarding body is specified	75%	12
Title of the microcredential is specified	75%	12
Holder is identified	69%	11
Date of issue is specified	63%	10
Learning outcomes are specified	50%	8
Employees' organisations (n=15)	**% of total responses**	**Count**
Date of issue is specified	80%	12
Awarding body is specified	80%	12
Title of the microcredential is specified	80%	12
Holder is identified	73%	11
Learning outcomes are specified	53%	8

NB: Respondents were given multiple-choice options.

Source: Survey of stakeholders representing VET providers and organisations representing employers and employees.

Table 6. **Elements least often included in microcredentials ([22])**

VET providers (n=87)	% of total responses	Count
Linked to standards	33%	29
Prerequisites for participation in the learning activity are described (e.g. working experience, skills and/or qualifications required)	30%	26
Duration of validity is specified	30%	26
Workload is expressed in terms of credits and/or duration	30%	26
Relationship to existing qualifications is specified	24%	23

([22]) Respondents were given multiple-choice options.

Employers' organisations (n=16)	% of total responses	Count
Duration of validity is specified	38%	6
Prerequisites for participation in the learning activity are described	31%	5
Linked to standards	25%	4
Workload is expressed in terms of credits and/or duration	19%	3
Relationship to existing qualifications is specified	13%	2
Employees' organisations (n=15)	**% of total responses**	**Count**
Duration of validity is specified	47%	7
Prerequisites for participation in the learning activity are described	47%	7
Relationship to existing qualifications is specified	40%	6
Linked to standards	40%	6
Workload is expressed in credits and/or duration	40%	6

Source: Surveys of stakeholders representing VET providers and organisations representing employers and employees.

3.3.2. Learning outcomes and workload expressed in terms of credits

The description of and focus on learning outcomes is strongly emphasised in many EU policy documents. For example, in the EQF context, learning outcomes should help make qualifications linked to the EQF (via their inclusion in NQFs) transparent, more understandable, comparable and transferable. Learning outcomes are considered as facilitating the design, delivery and assessment of full qualifications or components of qualifications. The European approach to microcredentials (European Commission, 2020a) also highlights the importance of clearly defined learning outcomes as a way to promote overall transparency and provide detailed information regarding what a learner is expected to know and is able to do.

Although substantial progress has been made in this regard in many European countries, there is still room for improvement in how to formulate learning outcomes (including expressing the level of complexity in learning outcomes statements) and presenting them in a transparent and accessible way (Cedefop, 2021b). The study thus explores the extent to which microcredentials are described in terms of learning outcomes.

Another important element to consider is the developments in relation to the modularisation of VET programmes in Europe; these modular structures are closely linked to the development of credit arrangements based on learning

outcomes ([23]). Assigning credits to learning outcomes allows for the accumulation of units of learning and provides for transferability from one setting to another for validation and recognition. Interviewees representing countries in which VET systems are modularised indicated that modules are designed to indicate a set of learning outcomes that are expressed in terms of credits. The interviewees from national authorities and VET providers commonly agreed that the introduction of modular structures in VET and the application of a learning outcomes-based approach was set to provide more individualised training paths, enabling access and progression for learners. However, individual modules based on learning outcomes that are expressed in terms of credits usually only work within the same formal education and training institution. This can hamper the transferability and mobility of individual modules within and across different VET systems.

The case studies and interviews indicate that the learning outcomes-based approach is standard practice for formal education and training. In cases where microcredentials are discussed and their introduction is planned into a formal system, it would be preferable for them to be in line with the learning outcomes approach. According to some interviews and case studies, not all microcredentials are connected to learning outcomes, especially those that fall outside the formal system.

Table 7. **Learning outcomes and microcredentials in national contexts**

Country	Main activities
Ireland	The set of qualification types that are included in the NFQ, which is maintained by the QQI, comprises Major, Professional, Minor, Special Purpose and Supplemental Awards. These can potentially be linked to microcredentials. The QQI's descriptions of minor and special-purpose awards and their links to learning outcomes are as follows: (a) minor award types provide recognition for learners who achieve a range of learning outcomes, but not the specific combination of learning outcomes required for a major award. Minor award types are always linked to major award types. These awards will always be smaller in volume than the major award of which they are a part. Awarding bodies may develop their own approaches regarding the smallest part of a major award that may be recognised in the form of a minor award; (b) special-purpose award types are made for specific, relatively narrow, purposes and are standalone. There is no requirement that they be linked to a major award, and special-purpose awards will always be significantly smaller in volume than a major award. A special-purpose award may also relate to more limited strands of learning outcomes than a major award. It is possible that a special-purpose award could, for example, focus on discrete skills (concentrating on the skill strands of learning outcomes) only.

([23]) Systems of credits are being designed by attaching a certain number of points to individual components of an education and training programme, or by describing qualifications in terms learning outcomes and attaching a certain number of credits to each of these outcomes (Cedefop, 2008).

Country	Main activities
Latvia	The modularisation of VET programmes has opened avenues for further discussion regarding the use of separate modules of full VET programmes in further and adult education, highlighting that the same curriculum can be applied, and expressed in terms of learning outcomes and credit points. Upskilling courses (*profesionālās pilnveides programmas*) have been widely used for a long time. With the current VET content reform introducing learning outcomes and modularisation of VET programmes, the role of separate modules for a particular competence (leading to a certificate after acquisition) is growing.
Slovenia	According to national authorities in Slovenia, the main characteristic of microcredentials is the document itself (which is ultimately issued to the individual and should reflect the actual nature of the qualification, i.e. its level, duration, learning outcomes and content). However, according to VET providers, not all training and other short-term forms of education are defined as micro-qualifications that can be regulated at national level. Unregulated qualifications that are not related to the national system, or only in general terms, according to certain programme structures (i.e. they are structured similarly to public programmes), do not have a defined target group, goals and learning outcomes.
Spain	All current developments in terms of draft regulations in the VET and HE sectors consider microcredentials to be proof of the learning outcomes that a learner has acquired following a short learning experience. 'Outcomes' refer to concrete skills, defined in the future national Catalogue of vocational competence standards (*Catálogo Nacional de Estándares de Competencias Profesionales*) which will replace the current Qualifications catalogue (*Catálogo de Cualificaciones*) described above. Thus, micro-training will be related to competence standards, a smaller reference than the currently used reference of qualifications.
Germany	The 'learning outcomes' orientation has been present in IVET and CVET long before the higher education sector had adopted the idea and so is a basic element of all qualifications and certificates. Against this backdrop, microcredentials refer to small qualifications that take less than a year and lead to a certificate that may be used for numerous purposes (application for a labour market position, stacking certificates etc.).

NB: Examples listed in this table are illustrative activities in the countries examined and do not represent an exhaustive list.

Source: Prepared by Cedefop, based on case studies and interviews.

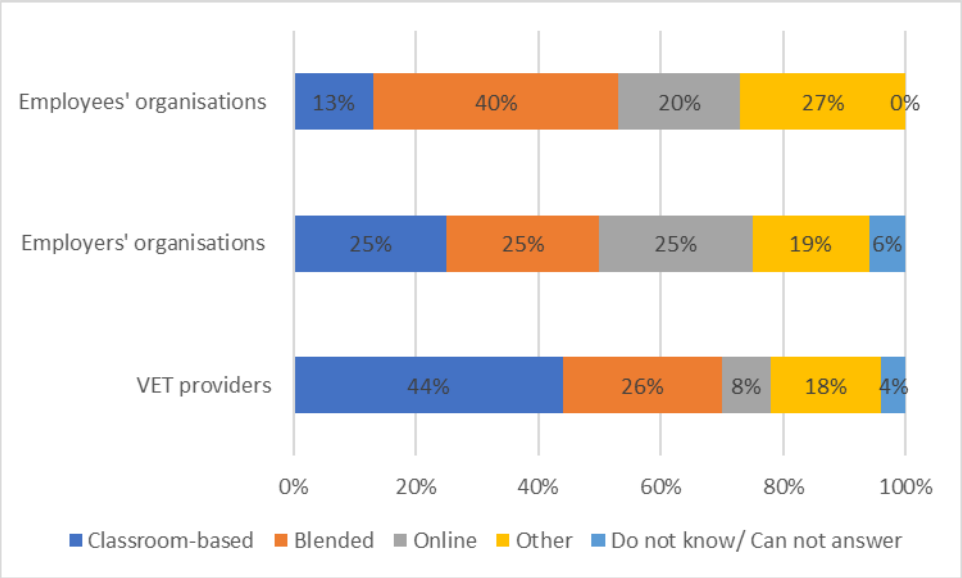
3.3.3. Mode of delivery and type of certification

The mode of delivery of microcredentials can also vary from classroom-based to online or blended. The online delivery option provides greater flexibility regarding the pace and time dedicated to the learning activity, while the blended and classroom-based delivery modes are more cost-intensive and require the learner to be present in a classroom. Technological advancements coupled with the recent COVID-19 pandemic have substantially boosted the uptake of online learning across Europe. There is a tendency to expect that the demand for short online courses might grow further in the future.

The traditional classroom-based mode of delivery is still commonly used. Even though the literature review suggests the importance of digitalisation for

microcredentials (Wheelahan and Moodie, 2021), (MicroHe, 2019), this is not fully supported by the study findings. For example, among VET providers offering microcredentials, the most common mode of delivery is classroom-based learning. Among employee and employer organisations, blended and online learning are more widespread.

Figure 8. **Modes of delivery by group of providers**



NB: 'Other' includes answers such as 'other types of face-to-face delivery (e.g. boot camps)', 'on-the-job training' and 'no mode is more common than the other'.

Source: Survey of stakeholders representing VET providers (n=78), organisations representing employers (n=16) and employees (n=15).

Similar findings emerge with regards to the certification formats used for microcredentials (Table 8). Based on the survey results, microcredentials are usually issued in a paper format.

Table 8. **Certification formats used by different groups of stakeholders**

VET providers	% of total responses	Count
Microcredential issued in paper format	78%	61
Microcredential issued in secure digital format	28%	22
Microcredential issued in non-secure digital format	10%	8
Employer organisations	**% of total responses**	**Count**
Microcredential issued in paper format	56%	9
Microcredential issued in secure digital format	19%	3
Microcredential issued in non-secure digital format	19%	3

Employee organisations	% of total responses	Count
Microcredential issued in paper format	67%	10
Microcredential issued in secure digital format	40%	6
Microcredential issued in non-secure digital format	33%	5

NB: Respondents were given multiple-choice options.
Source: Survey of stakeholder representing VET providers (n=78) and organisations representing employers (n=16) and employees (n=15).

3.3.4. Duration

The length of a learning experience leading to a microcredential varies significantly, as it depends on the type of provider and its purpose. Learning activities offering specific and very narrow skills and competences are usually shorter in duration compared to partial qualifications. In addition, self-paced learning is emerging via various platforms (e.g. Udacity, Coursera, FutureLearn, EdX), offering even more flexibility, as learner progress depends on individual availability. Some examples of microcredentials that apply different approaches to duration are provided in the boxes below.

Box 5. **OpenClassrooms short learning courses**

OpenClassrooms, a French private provider of open online learning, provides short learning courses, which last on average between 5 and 15 hours. They also offer modularised courses as part of a specific programme that provides an occupational certificate on completion. The duration of these programmes averages between 6 and 12 months.

Source: OpenClasrooms.

Box 6. **Estonian Aviation Academy course**

The Estonian Aviation Academy has developed a free online course, 'Introduction to Aircraft', a 3-month course that was made available via the e-learning environment Moodle.

Source: Estonian Aviation Academy.

Box 7. **Austrian Vocational Training Institute courses**

Online courses offered by the Austrian Vocational Training Institute (BFI) are not bound to a specific timeframe, as learners can begin a learning activity at any time; however, after actual enrolment has taken place, access to the courses is only granted for a specific duration, depending on the workload.

Source: Austrian Vocational Training Institute.

Box 8. **Hungary: certificate attesting the completion of a professional programme**

A document that can be considered or qualified as a microcredential is the certificate attesting the completion of a professional programme of at least 60 credits that must be acquired by VET teachers and trainers in every 4 years in the course of their further training.

Source: Cedefop, 2021a.

Box 9. **Malta: awards**

Microcredentials in Malta are offered on a full-time or part-time basis. The duration of full-time courses leading to awards (microcredentials) is a maximum of 1 year, e.g. Skills kits, Award in retail, Award in basic office skills and Award in vocational skills A and B. Part-time courses vary in duration depending on the subject area. These may be followed either as a bundle or as separate modules/single units. For example, the award in tungsten inert gas pipe welding consists of three units/modules. The learner can opt either to take the course as a bundle or take each unit at a different time spread over a number of years.

Source: Cedefop, 2021a.

Box 10. **Ireland: minor, special purpose and supplemental awards**

QQI specifies that 'the NFQ's minor, special purpose and supplemental award-types are examples of prototype microcredentials and perhaps meso-credentials, though microcredentials can be smaller even than minor awards'. At EQF level 4 and 5 the norm for minor awards is 15 credits and the minimum is five with one credit equalling 10 hours of effort. In FET the minimum size for an award is five credits, while smaller microcredentials are usually digital badges.

Source: Cedefop [forthcoming-c].

Box 11. **Spain: catalogue of training specialities**

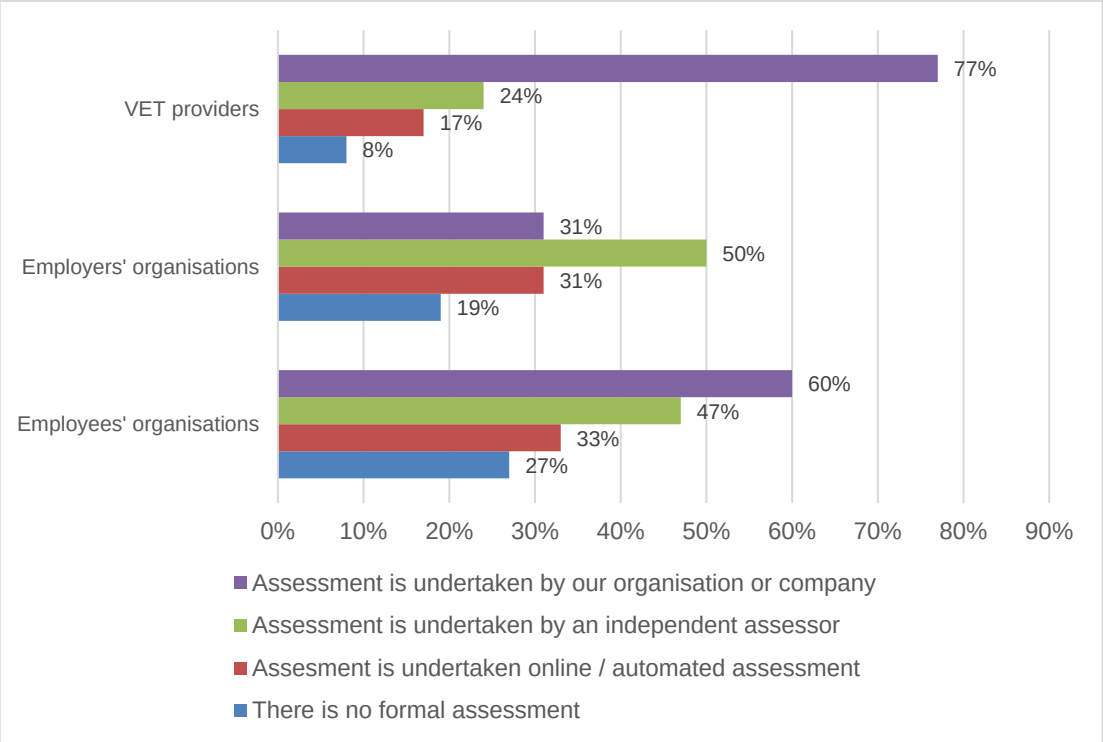
The term microcredential in Spain can refer to learning of short duration not included in the formal VET system. At present, the State public employment service (SEPE) has a catalogue of training specialities, with more than 4 000 of them, with a duration between 3 and 1 110 hours, which make up the subsidised training provision for workers (employed or not). These specialities only lead to attainment diplomas or certificates of attendance and could be considered as microcredentials.

Source: Cedefop, 2021a.

3.3.5. Assessment

The standards to be achieved and the assessment criteria and procedures applied play an important role in ensuring the quality of, and trust in, credentials. Microcredentials can be awarded using one or a combination of different assessment methods, although there are microcredentials awarded solely on the basis of attendance, which is usually not considered as sufficient evidence of achievement According to the data, the latter are more often issued by labour market actors, mainly employee and employer organisations. The most common assessment practice is based on assignments, which provide an evaluation of the knowledge acquired. Assessment is usually an in-house process but it is also undertaken by independent assessors.

Figure 9. **Types of assessment used by different groups of stakeholders**



NB: Respondents were given multiple-choice options.
Source: Survey of stakeholders representing VET providers (n=78), employers' organisations (n=16) and employee's organisations (n=15).

3.4. Main microcredential quality assurance practices

Key findings

- Ensuring quality is a main prerequisite for microcredentials to gain trust.
- A variety of (mainly internal) quality assurance processes is used. Not all microcredentials are quality assured on the basis of nationally established quality standards.
- Microcredentials offered within formal education and training should follow the same standards as qualifications.

Quality assurance is an important feature that enhances trust in qualifications within and across European countries. For example, the EQF Recommendation presents common quality principles for quality assurance and asks Member States to ensure that qualifications with an EQF level are in accordance with these principles. In the formal system, quality assurance procedures are usually regulated by law and supervised by authorities. The situation outside the formal system is not regulated by law and there is generally less information available Quality assurance is considered, especially by representatives of the public sector, as one of the most important factors contributing to the spread of microcredentials. This is further supported by the study findings suggesting uncertainty about microcredentials quality assurance mechanisms is a major factor reducing trust on them.

In formal education and training, learning programmes are usually quality assured by well-established procedures. Thus, microcredentials offered within the formal education and training system should follow the same standards applied to other formal qualifications and credentials. In countries with modularised VET systems, microcredentials are often considered as modules of full qualifications. According to this approach, modules that are taken separately adhere to specific quality assurance standards, and there is no need for additional quality assurance standards to be introduced. This is also deemed to be the case in higher education institutions that divide their programmes into modules.

Box 12. **Certificates of advanced studies (CAS) at Johannes Gutenberg University, Mainz**

The Centre for Scientific Further Education, established by the Johannes Gutenberg University Mainz, offers credit-bearing, stackable courses that lead to the Certificate of advanced studies (CAS). These courses are designed for people following their first professional qualification or initial professional experience to refresh or deepen their previously acquired knowledge. The quality of these courses is assured by applying the same quality assurance procedures used for other programmes offered by the University. The courses leading to the CAS are credit-bearing and are easily classified according to the European Credit Transfer System (ECTS), thereby providing a quality and credibility label.

Source: Interview with a representative of a VET provider in Germany.

According to the study findings a regulatory framework for microcredentials, based on certain quality standards, ensures their transparency, signalling value and generating trust. A prerequisite for such an approach to be implemented is for microcredentials to be clearly defined. Despite this strong emphasis on the quality assurance, it is also highlighted that their use and development must not create any additional administrative burden to institutions offering them. Therefore, it is important not to regard microcredentials as a separate offer with a separate quality assurance mechanism, but to integrate them into existing systems.

In certain cases, microcredentials evolving outside the formal system are characterised by lower levels of quality assurance, as quality standards are less formalised or because they are stand-alone and not part of a full qualification. As highlighted by the Polish case study (Cedefop, forthcoming-d), one of the central issues of the debate on microcredentials is their credibility and quality. The main factors limiting the level of trust include: doubts about the quality of some microcredentials, no agreed standards for quality assurance, and uncertainty as to whether certain microcredentials will be recognised by national authorities, employers or education and training providers.

Some attempts are being made to address the issue of the quality of credentials that are operating outside the formal system. In the two initiatives from Belgium and France, shown below, there was an effort to rethink the principles of recognition or to integrate labour market credentials into the formal system, with international and private providers currently creating systems for the development and recognition of microcredentials.

Box 13. **Initiative in Belgium to attribute a quality label to credentials outside the formal system**

Over recent years, a Belgian initiative on quality assurance has looked into how organisations outside formal education and training can use the same quality label as those within. For example, if McDonalds wants a quality label for the training it provides to its employees, it is allowed the opportunity to go through the formal quality assurance system. This initiative is currently in the implementation phase.

Source: Interview with a representative of a national authority in Belgium.

Box 14. **Open recognition initiative in France**

The association Reconnaître brings together regional actors and projects for open recognition of talents, competences and communities. It is represented at regional level, by the actions and initiatives of the 'Badgeons' collectives. The association aims to rethink the principle of recognition, which usually comes from an institution. Representatives of the association promote open recognition, which means that everyone participates in an ecosystem of recognition and that recognition does not necessarily come from an institution but from a community and can then be transmitted to an institution. The association also wishes to broaden the spectrum of skills and learning that are generally recognised under the traditional qualifications framework.

Source: Cedefop [forthcoming-b].

Inclusion of microcredentials in NQFs provides de facto trust in their quality. Although quality standards are important, it is considered impossible for formal systems to accommodate all existing microcredentials. For instance, in Denmark, many private providers offer credentials that are not quality assured by a public agency, therefore they cannot be connected to EQF or NQF. It would be impossible for public authorities to quality assure all existing credentials, as they would be overburdened. The same applies for Ireland. This is often described as a main reason why qualification systems not opened to all types of credentials. The Slovenian case study (Cedefop, forthcoming-e) illustrates the situation in as follows: 'it could be said that the short training and education courses or programmes that comply with characteristics of microcredentials and are accredited and included in NQF are somehow trusted in national context. For all other short training and education courses or programmes that comply with the characteristics of microcredentials, the trust depends on the quality of the content as well as on the issuer and provider and market success.'

The study findings indicate that a wide variety of microcredentials operate within and outside formal education and training. Their quality assurance processes differ. Further, not all microcredentials are quality assured on the basis

of nationally established quality standards. Approximately 50% of VET providers that participated in the survey use an internal quality assurance process, while 41% use an external one.

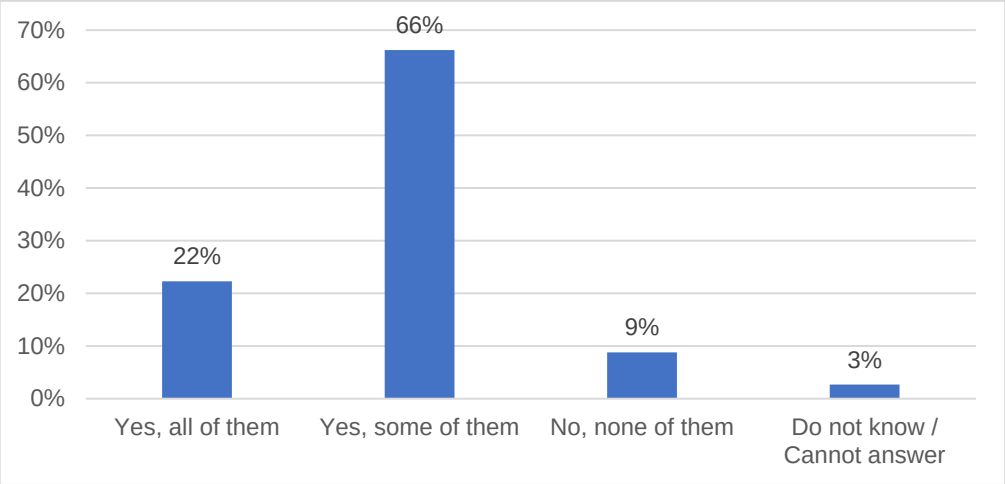
3.5. Accumulating and combining microcredentials

Key findings

- Microcredentials may be accumulated and combined with other microcredentials or qualifications.
- Microcredentials are most often combined into full qualifications, recognised as part of the learner's education and training programme and added to an employee's individual account or personal portfolio.
- The modularisation of VET programmes signals a move towards accumulation and combination options, as modules taken separately can be bundled together by combining the credits attributed to each module.

Stackability of microcredentials refers to the certification of learning that can be accumulated into a larger credential or degree (Kazin and Clerkin, 2018). Accumulating and combining microcredentials within formal education and training systems is already visible in various EU Member States, where traditional VET programmes that lead to a specific qualification are being unbundled and replaced by modularised programmes. In Spain, for example, the modular structure of vocational training cycles offered by the education ministry allows each learner to decide autonomously the modules for which they wish to enrol. In Ireland, the modular nature of the qualifications system already accommodates free-standing qualifications and qualifications as small as five credits; credentials smaller than this can be used as steppingstones into qualifications on the national framework of qualifications (NFQ) by being aggregated and used in recognition of prior learning. 88% of VET providers confirmed that at least some of the microcredentials they offer can be accumulated and combined with other credentials and qualifications offered by the same organisation (Figure 10).

Figure 10. **Can microcredentials offered by your organisation be accumulated and combined with other qualifications and credentials from your organisation?**



Source: Survey of stakeholders representing VET providers (n=59).

Providers indicated that, most commonly, microcredentials offered in their organisations can be combined into a full qualification, recognised as part of a learner's education and training programme, added to a learner's individual account or portfolio and recognised as prior learning. A distinction should be made between private VET providers, where microcredentials are most often combined into a full qualification, and public VET providers which consider partial qualifications or module certificates ([24]) as microcredentials. The dichotomy between microcredentials and partial qualifications should be clarified. Trade unions have been critical about any education and training provision that focuses entirely on one certain knowledge or skill but which does not provide them with a full qualification. According to them, 'microcredentials should correspond to a standard size of training (not too small), stand as a proof of achievement/certificate which should clearly explain that it is not a full qualification and what part of the full qualification it consists of' (Etuc and Etuce, 2020). The table below lists the forms of accumulation for microcredentials most commonly used by different groups of vocational education and training providers.

([24]) Partial qualifications and module certificates are usually integral parts of an education and training programme.

Table 9. **Forms of accumulation for microcredentials most commonly used by different groups of VET providers**

Public providers	% of responses	Count
Recognised as part of a learner's education and training programme	76%	19
Combined into a full qualification	66%	18
Recognised as prior learning	47%	13
Private non-profit providers	**% of responses**	**Count**
Combined into a full qualification	58%	4
Added to a learner's individual account/personal portfolio	55%	3
Recognised as part of a learner's education and training programme	38%	2
Private for-profit providers	**% of responses**	**Count**
Combined into a full qualification	71%	6
Added to a learner's individual account/personal portfolio	66%	7
Combined into a larger credential	52%	5

NB: Iterative proportional fitting was applied to the results of the VET provider survey to account for the uneven representation of respondents per country. Respondents were given multiple-choice options.

Source: Survey of stakeholders representing VET providers (n=46).

Among employee and employer organisations that offer microcredentials, the survey shows that the most commonly used form for accumulating microcredentials is to add them to an employee's individual account or portfolio (60% and 63% of responses, respectively). The table below presents the three most commonly used forms for accumulation for microcredentials offered by organisations representing employees and employers.

Table 10. **Forms of accumulation for microcredentials most commonly used by organisations representing employers and employees**

Employers' organisations (n=16)	% of responses	Count
Added to an employee's individual account/personal portfolio	63%	10
Recognised as employee's prior knowledge, skills and competences	50%	8
Combined into a full qualification	31%	5
Employee organisations (n=15)	**% of responses**	**Count**
Added to an employee's individual account/personal portfolio	60%	9
Combined into a full qualification	40%	6
Recognised as employee's prior knowledge, skills and competences	33%	5

Source: Survey of stakeholders representing employers' and employees' organisations.

The study showed that microcredentials would be largely beneficial for the simplification of procedures to recognise prior learning. In many European countries, these procedures are often considered complicated and burdensome, preventing individuals from applying or leading them to opt-out of the process after submitting their application. Quality assurance, assessment and accreditation would be of the utmost importance, as well as clear presentation of achieved learning outcomes.

According to the study findings, there are indications that embedding existing microcredentials, such as industry and professional certifications, into formal education and training programmes could be an option that would equally benefit the labour market, learners and formal education and training systems. This practice could be particularly useful in fields where continuous professional development plays and intrinsic role (e.g. information technology, healthcare, manufacturing). Nevertheless, two main challenges are raised: determining the type of standards that employers should rely on when hiring; and formal education and training institutions choosing between what kind of certifications (vendor-neutral, e.g. CompTIA, or vendor specific, e.g. Cisco, Microsoft) to include in their programmes. Recognising industry or professional certifications as part of a learner's education and training programmes would provide an avenue for closer cooperation between academia and the labour market by keeping the content of the programmes up to date as well as providing learners with a competitive edge and a smooth transition to the labour market.

Looking at microcredentials evolving outside of formal education and training, the option to accumulate them towards a full formal qualification is troublesome. Private organisations rely on their own practices in terms of recognising knowledge, skills and competences, or on slightly differing labour market standards compared with the ways in which formal education programmes are designed and delivered. The study showed that unless microcredentials meet the same quality criteria and are accredited by the authorities responsible for formal education and training, the option to accumulate or combine them towards a full formal qualification cannot be feasible. Another hindering factor is that many national qualifications frameworks (NQFs) are not yet widely open to non-formal and private sector qualifications and certificates.

In terms of the accumulation of microcredentials, national authority representatives stressed that it is very important to define clearly what advantages and opportunities they offer learners in the long run. Learners need to receive concise information regarding what type of pathways microcredentials can open for them, and how they may contribute directly towards a full qualification. This was illustrated by a German expert, who indicated that a holistic approach must be

maintained towards vocational education, that pieces must be pieced together in a meaningful way, and that not all parts of qualifications can be divided into smaller units.

Microcredentials can also have value in cases where they are not accumulated and combined into full qualifications. As illustrated in the Irish case study (Cedefop, forthcoming-c), there is an undoubted need for people to be able to complete selected parts of larger programmes that may be of interest. For example, a person with a computer science degree may, a few years after graduation, be interested in a module introducing some new software technology. Arguably, the educational process (and associated learning) is more important than the credential, but a microcredential is a useful way of formally recording the achievement and may add weight to a CV. In such a context, e-portfolios can play an important role in showcasing an individual's achievements. In France, for example, the Competences passport is linked to each person's personal training account.

The study confirmed that approaches to accumulation and combination vary between national contexts. This also had an impact on the way microcredentials are interpreted within national systems, and whether and where they fit into such systems. A more detailed overview of accumulation and combination practices is presented in Table 11.

Table 11. **Accumulation and combination practices for microcredentials in different national contexts**

Country	Main activities
Finland	The Finnish interpretation of microcredentials allows for accumulation of achievements within vocational qualifications. Learners can complete entire qualifications, parts of them or smaller units, or combine parts of different qualifications based on their needs. VET supports the personalisation of studies with the possibility of validating/recognising prior learning. Processes for validation and recognition of prior learning have been defined, clearly indicating to learners how they should proceed.
France	In France, the first microcredentials or similar forms are developing outside the qualifications framework. Individuals can therefore accumulate microcredentials without them being officially certified in the same way as diplomas, titles and qualifications recognised by the national qualifications catalogue. For this reason, there is no assurance that microcredentials will be recognised in different socioeconomic spheres.
Germany	Even though apprentices can combine together several certified courses if they pass the recognised certificates, this is not allowed for the entire apprenticeship. This is due to the approach that the whole is better than parts, and that apprentices need to develop a work ethic and a holistic view of their future profession.

Country	Main activities
Ireland	Ireland has a highly flexible system. In further education and training, QQI operates a credit accumulation system called the common awards system. The system comprises compound and component awards. Compound awards may be achieved by accumulating component awards. Component awards most frequently require 150 hours of learner effort, but this volume can be as little as 5 hours. Compound awards can be major, special-purpose or supplemental.
Netherlands	There is no possibility to accumulate edubadges towards full qualifications. Instead, they are presented as an add on. Currently, students of VET in the Netherlands can opt for certificates, and several certificates together form a qualification. Certificates are larger units, whereas edubadges are expected to be smaller.
Poland	The Act of 22 December 2015 introducing the Polish Integrated Qualification System (IQS) allows for the gradual accumulation and recognition of achievements. In theory, this opens up vast possibilities for the accumulation and combining of microcredentials with other qualifications. The Act also states that certifying authorities may recognise achievements attained elsewhere in stages. In the light of these provisions, it can be concluded in principle that no amendment to the Act is needed to implement microcredentials within the system. Although the described mechanism remains inactive, the Badge+ aims to promote actions towards this direction.
Spain	The Draft Law on (formal) VET envisages that microcredentials are accumulated and combined with other microcredentials or qualifications, both inside and outside the education system. However, within the university system, microcredentials will be complementary but not accumulated and combined with other qualifications.

Source: Prepared by Cedefop, based on case studies.

CHAPTER 4.

Microcredentials and the labour market: formal education and training

This chapter provides an overview of the ways in which microcredentials are being used in labour-market-related education, training and learning. It focuses on formal education and training; Chapter 5 discusses the extent to which microcredentials are evolving outside and independent of formal education and training systems, for example offered by companies, professional organisations and others.

We first try to cover the main purposes of microcredentials in formal education and training as perceived by different stakeholders such as national authorities and VET providers. Section 4.2 analyses perceptions of the barriers that hinder their use in the formal education and training system. The following sub-chapter provides an overview of how, and to what extent, formal education and training providers engage with microcredentials; Section 4.4 provides an overview of the main target groups engaging. The final sub-chapter examines if and how the COVID-19 pandemic has affected the engagement of the formal education and training sector with microcredentials.

4.1. Key purposes of microcredentials in formal education, training and learning

Key findings

The main purposes of microcredentials are related to a quick and accurate response to the needs of the labour market, provision of more flexible learning pathways, ways to recognise prior learning, and to make knowledge, skills and competences more visible.

The study findings indicate that the main purposes behind learning activities leading to microcredentials relate to making better and quicker responses to the needs of the labour market, providing more flexible learning pathways for learners, providing ways to recognise prior learning, and making knowledge, skills and competences more visible. For example, representatives of national authorities that indicated microcredentials as a part of their national qualifications systems or frameworks, and experts participating in the interview programme, suggested that flexibility often relates to providing learners with different choices as to how and when they learn. VET providers indicated that they either provide or seek to provide

learning activities leading to microcredentials, which allow learners more choices in terms of their mode of delivery, learning pace, entry and exit routes as well as skill level.

The study also signals that microcredentials are considered useful in addressing the need for the upskilling and reskilling of the workforce (for example see Table 8). This may indicate that the responsibility for upskilling and reskilling is being placed on individuals, and microcredentials are usually expected to make it easier for these individuals to take care of their upskilling or reskilling needs.

Survey respondents linked upskilling and reskilling with increasing employability; it was suggested that individuals who engage with upskilling and reskilling activities have better prospects for employment. Employability is also a recurring theme in the literature on microcredentials; Brown and Souto-Otero, (Brown and Souto-Otero, 2018) and Wheelahan and Moodie (Wheelahan and Moodie, 2021) highlight that labour markets are increasingly demanding individuals to bear higher responsibility for their careers and build relevant skills profiles to improve their employability. The interview programme also suggested that the main benefit and purpose of microcredentials is to provide quick and on-demand competences rather than to change existing qualification systems.

Table 12. **Main purposes of microcredentials in national qualifications systems and frameworks**

Main purposes	% of total responses	Count
To respond better to the changing needs of the labour market	92%	12
To address the need for upskilling and reskilling of the workforce	85%	11
To sustain lifelong learning policies and motivate lifelong learning behaviour	77%	10
To help individuals to make their knowledge, skills and competences visible	77%	10
To assist transition to the labour market for new graduates	62%	8
To address skills needs in emerging sectors of the economy in which qualifications are not yet formalised	31%	4
To address structural unemployment	23%	3
To sustain labour market policies and reforms	15%	2

NB: Respondents were given multiple-choice options.
Source: Survey of stakeholders representing national authorities (n=13).

National qualifications systems continually undergo changes, so the survey asked stakeholders representing national authorities in countries that have not yet referenced and/or integrated microcredentials into their national qualifications

systems, whether there are any plans to do so. Most respondents (51%) were unsure as to whether there are any plans to open up their systems, suggesting that stakeholders are somewhat unsure about the topic and how their national qualifications systems interact with microcredentials. 31% of respondents indicated that there were plans to open their national qualifications systems to microcredentials. Respondents from countries in which they are not currently included in the qualifications systems or frameworks, but who indicated that there are plans to do so, identified almost the same purposes as did those respondents from systems that already include them (Table 13).

Table 13. **What would be the main purposes of microcredentials in national qualifications systems and frameworks that are planning to open up to microcredentials?**

Main purposes	% of total responses	Count
To respond better to the changing needs of the labour market	90%	17
To address the need for upskilling and reskilling of the workforce	79%	15
To help individuals to make their knowledge, skills and competences visible	79%	15
To sustain lifelong learning policies and motivate lifelong learning behaviour	74%	14
To assist transition to labour market for new graduates	26%	5
To address skills needs in emerging sectors of the economy in which qualifications are not yet formalised	26%	5
To sustain labour market policies and reforms	26%	5
To address structural unemployment	11%	2

NB: Respondents were given multiple-choice options.
Source: Survey of stakeholders representing national authorities (n=19).

The survey of stakeholders representing VET providers reveals that the main reasons for them to offer microcredentials is to respond to the needs of learners and employers (Table 10). This corroborates the previously raised points that education and training systems:

(a) do not necessarily provide enough possibilities for adults who want to update their skills in a quick and flexible manner;
(b) do not always respond to the changing needs of employers and the labour market in a timely manner.

Table 14. **Main reasons for education and training providers to offer microcredentials**

Main reasons to offer microcredentials	% of total responses	Count
To respond to the needs of learners for specific education and training opportunities	55%	54
To respond to the needs of employers for specific education and training to their current or future employees	54%	52
To facilitate cooperation with labour market actors such as employers, business associations or chambers of commerce	32%	30
To keep pace with educational innovations	27%	27
To increase the speed at which various education and training needs are being met	26%	24
To increase awareness about services among learners and employers/branding opportunity	23%	22
To respond to recommendations by national authorities to offer microcredentials	21%	18
To secure additional funding	10%	9
To facilitate cooperation with other education and training providers	10%	11

NB: Iterative proportional fitting was applied to the results of the VET provider survey to account for the uneven representation of respondents per country. This question was answered by respondents who provide any type of microcredentials. Respondents were given multiple-choice options.

Source: Survey of stakeholders representing VET providers (n=78).

The employer organisations who were interviewed indicated that there is also a need to train young graduates from the start with skills relevant to the labour market, due to employer recruitment difficulties. This raises interesting questions about the role of microcredentials within initial VET (IVET). It is also supported by the survey of VET providers, in which respondents indicated that one of the main reasons for offering microcredentials is to respond to the needs of employers for the specific education and training of their current or future employees.

In Denmark, for example, employers are facing labour shortages at all qualifications levels. Similarly, representatives from the Hungarian trade union shared concerns about an increasing demand for low-skilled labour or for certain vocational or technical skills. Labour market stakeholders see microcredentials as a speedy way to train the workforce they need. As interviewees from Finland and Denmark mentioned, employers are struggling to recruit new workers and want faster ways to train and hire employees. This creates a tension: qualification systems and State-funded VET providers typically prioritise broader and longer-term objectives in their IVET programmes and qualifications, including goals such as developing active and democratic citizens; employers tend to focus on short-

term business needs and filling urgent skills gaps. This makes employers particularly interested in microcredentials as a quick way of hiring people with the right skills to fill vacant posts.

The reality of labour market entry in many countries and in many occupations is that IVET programmes and qualifications at best provide a 'good fit' with the competences required to do a particular job in a company. It is common for new recruits, fresh from school, to undergo a company training scheme upon entry to employment; microcredentials can provide effective recruitment through competence-based hiring (Maxim, 2021). Skills development is not a function provided only by the State in the initial phases of education and training but often continues, to varying degrees, for learners after they enter the labour market. Nonetheless, it is important to note that microcredentials developed in such circumstances do not necessarily fit with the European Commission's (European Commission, 2020a) definition, nor would they be recognised by national systems as they currently stand. They would usually operate independently.

Policy-makers and labour market stakeholders are increasingly interested in using microcredentials as a way to encourage lifelong learning among adults (e.g. to ease transition and facilitate permeability between pathways); microcredentials are also used to validate and recognise prior learning and competences that people already possess. As several interviewees mentioned, the goal is to focus on competences, regardless of where and how they were obtained.

Survey respondents argued that current recognition systems operate on a case-by-case basis, are too lengthy and often come at a cost to the individual. For example, respondents representing a Danish employers' confederation indicated that, in their national context, unskilled or skilled workers can have their recognition and validation costs covered, while individuals with a post-secondary qualification have to pay out of their own pocket. Both employers and trade unions find that the current recognition models are up against qualifications that are not sufficiently aligned to labour market contexts in which occupational profiles are no longer stable. They also regard recognition procedures as cumbersome and therefore not very scalable. Stakeholders noted a push towards the accumulation and stacking of different competences and a desire to make them recognised across education and training providers, sectors, occupations and geographies. The goal is to allow the individual learner to stack competences and have them documented as they go along their lifelong learning journey.

4.2. Barriers to using microcredentials for labour-market-related education, training and learning

Key findings

- There is general uncertainty and lack of knowledge concerning microcredentials among various stakeholder groups.
- VET providers are often engaged only with full qualifications, which can be related to the context of the education and training system in which they operate as well as to a lack of recognition of and demand for microcredentials among end users, both learners and employers.
- While concerns were expressed that a substantial part of the education and training system should not be shaped only around the labour market, most interviewees did not see microcredentials as posing any major threats in terms of replacing or substituting for formal full qualifications.

The study revealed considerable uncertainty and lack of knowledge regarding the term microcredentials, featuring strongly in the survey data; when asked about various aspects relating to microcredentials, many survey respondents could not provide specific answers ([25]). For instance, 41% of national authority representatives did not know whether any barriers existed to the uptake of microcredentials, while 31% replied 'yes' and 28% 'no'.

The proliferation of microcredentials has led to a degree of confusion among stakeholders. The study showed that, across various national contexts and stakeholder groups, there is confusion regarding what the term actually represents. Among national authorities, 55% confirmed that the term is not used in their national context, while 48% of VET providers could not indicate whether their organisations provided microcredentials. This lack of a transparent and commonly agreed definition was identified as a key barrier, together with the fact that recognition is not standardised (Table 15). These findings also suggest that microcredentials are still an emerging phenomenon, not yet having reached its peak.

([25]) Considering that the Council Recommendation on a European approach to microcredentials was published after the survey and interview programme of this report.

Table 15. **Main barriers to the uptake of microcredentials in national contexts, according to representatives of national authorities**

Main barriers	% of total responses	Count
There is no transparent and commonly agreed definition of microcredentials	74%	17
Recognition of microcredentials is not standardised	74%	17
Added value of microcredentials not clear to employers	48%	11
There is a lack of funding for the development and implementation of microcredentials	39%	9
There are regulatory barriers relating to quality assurance	39%	9
There is a lack of digital solutions for validation, recognition and storage of microcredentials	35%	8
Microcredentials are not on the national/regional policy agenda	26%	6
Microcredentials are not compatible with the national qualifications system/framework/catalogue	26%	6
Education and training providers are not interested in the provision of microcredentials	26%	6
Learners are not interested in/do not value short learning activities that can be completed with microcredentials	9%	2

NB: Respondents were allowed multiple choice option.
Source: Survey of stakeholder representing national authorities (n=23).

VET providers highlighted structural issues for not offering microcredentials, such as the provision of only full qualifications, as well as perceptions of their value by employers and learners.

Table 16. **Main reasons for education and training providers not to offer microcredentials**

Main reasons not to offer microcredentials	% of total responses	Count
VET providers offer only full qualifications	32%	11
Employers do not recognise/understand the value of acquired competences that microcredentials signal	22%	7
Microcredentials are not accredited by responsible agencies/bodies	20%	5
Microcredentials are not funded like other qualifications and credentials	16%	2
Other education and training providers do not recognise microcredentials	15%	3
Microcredentials are not on the national policy agenda	11%	4

Learners are not interested in/do not value short learning activities that can be completed with microcredentials	8%	6
Microcredentials are not compatible with the national qualifications framework	7%	3

NB: Iterative proportional fitting was applied to the results of the VET provider survey, to account for uneven representation of respondents per country. Respondents were given multiple-choice options.

Source: Survey of stakeholders representing VET providers (n=27).

At the same time, most interview respondents did not see microcredentials as posing any major threats in terms of replacing or substituting for formal full qualifications. There was a consensus among interviewees that microcredentials are usually used to supplement traditional qualifications, or form part of these qualifications when operating in some modularised systems. For example, interview representatives from Germany, Ireland and Finland indicated that full qualifications and microcredentials serve different purposes and target different markets. Full qualifications most often target youths and young adults, either before they begin or at the beginning of their careers; microcredentials more often target people who already have full qualifications or experience of working life. Representatives from ministries of education and trade unions in the Nordic countries emphasised the importance of providing the young with holistic and general education and acquiring full qualifications. They see microcredentials as complementary learning that adults engage with after having obtained a full qualification and entered the labour market. According to interviewees, traditional education and training is here to stay, but education and training systems cannot remain stagnant and must evolve with the changing needs of society and the labour market.

Core State funding in European VET systems is traditionally directed towards full qualifications, but specific examples exist in some systems of how various targeted initiatives are financed in a way that (could) support microcredentials, as shown in Table 17. According to the interviewees, particularly VET providers and labour market actors, public financing of microcredential activities could assist in promoting their wider uptake. As many potential users might be unemployed or seeking to improve their employment prospects, making microcredentials available at low or no cost is critical to reach the learners that might benefit the most.

Table 17. **Funding of learning activities at national level**

Country	Main activities
Finland	VET is jointly financed by central and local governments, and funding is paid directly to VET providers, who decide how to allocate these financial resources. However, developing and offering short-term training does not increase financing. Finnish education providers believe that short-term training would not be adequately funded.
France	The issue of enrolment in national catalogues (RS or RNCP) will be central to the development of microcredentials in France, as the funding of training is attached to this process. This is a particularity of the French adult learning system, which links registration with the financing of education and training through the use of the individual learning account (CPF). In a national structure in which training is dissociated from certification, registration allows access to mutualised funding for training. If microcredentials are not recorded, it is up to individuals or companies to sponsor the training on their own.
Germany	Since 2020, the Federal Ministry of Education (BMBF) has funded a further 15 projects in Germany that promote the digitalisation of the training modules.
Ireland	In 2019, an innovation fund was launched to support the large step up required from Education and Training Boards (ETBs) to deliver the flexible learning opportunities needed. The fund encourages ETBs to work together and with enterprise partners to develop solutions and responses to meet the needs of engagement with employees and enterprise. 10 projects are heading into a mainstreaming phase, some of which are relevant to microcredentials. In relation to digital badges, SOLAS has a national certification agreement with Certiport (a Pearson VUE business) on behalf of the FET sector to access industry-recognised examinations and certifications. These certificates are issued as part of publicly funded FET programmes organised by ETBs: SOLAS will fund a programme in which these industry certifications are either the only certification, or are combined with QQI qualifications; learners are awarded digital badges as standard on passing their exam. Around 4,000 certifications of this nature are issued each year in FET, mostly in relation to Microsoft and Adobe subject domains.
Netherlands	Dutch VET institutions do not receive any money for edubadges; there is no financial incentive in the current financial structure. Financing by the government is only possible for formal vocational certificates, which excludes a wide range of available microcredentials and restricts funding to a small group of certificates. Financing of microcredentials is more of an exception rather than a rule.
Poland	The SPINAKER programme was started in 2020 by the Agency for Academic Exchange (NAWA). The programme offers financing to expand the offer by Polish universities of new intensive international education online courses (from 30 to 150 hours), which are intended for foreign students. In this context, microcredentials serve to increase the internationalisation of Polish higher education and scientific institutions.

Country	Main activities
Spain	The National Foundation for Training for Employment (Fundae) manages the funding available to companies for the non-formal, non-accreditable training actions they organise (through rebates in employers' social security contributions, called *formación bonificada or formación programada por las empresas*). This covers between 10% and 20% of training costs. Training for employees is delivered directly by the company or by external authorised public or private training providers. This training is very flexible and adapted to the needs of employers. This funded training may enable recipients to obtain microcredentials under the reforms currently being prepared by employment authorities.

Source: Prepared by Cedefop, based on case studies and interviews.

Limited funding was also perceived as a barrier by ReferNet respondents. In Bulgaria, employees are unwilling to spend extra money on such types of training; given the structure of enterprises (over 99% are SMEs), they also find it difficult to allocate funds for their employees' upskilling. The problem is the same when it comes to individuals who want to upgrade their qualifications or improve their skills. In such circumstances there are too few people to form a training group and it is not profitable for VET centres to start planning such training courses.

4.3. VET provider engagement with microcredentials

Key findings

- Microcredentials are being offered by VET providers, both on their own but also in partnership with other actors, especially with other formally recognised providers and employers' organisations.
- Microcredentials are offered by formal VET providers mainly in the areas of ICT, manufacturing, engineering, services, health and education.

Organisations that offer various types of credentials usually offer professional certificates (e.g. CertiProf), academic certificates (e.g. colleges) and microcredentials (e.g. Digital Promise). A low share of respondents offer vendor-related certificates and digital and open badges, though the latter two may reflect the comparatively poor digital infrastructure in VET relative to other sectors of education ([26]). Table 18 provides a detailed presentation of offerings available from the VET providers surveyed.

([26]) See for example, European Commission (2020b). *Innovation and digitalisation: a report of the ET 2020 working group on VET*. https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8365

Table 18. **Types of credentials offered by VET providers**

Credentials	% of total responses	Count
Professional certificates (e.g. CertiProf)	47%	47
Academic certificates (e.g. colleges)	29%	27
Microcredentials (e.g. Digital Promise)	27%	21
Do not know / cannot answer	17%	19
Other	17%	16
Vendor-specific certificates (e.g. Cisco)	13%	15
Digital badges (e.g. CNet Training)	13%	11
Open badges (e.g. IBM)	12%	7
Our organisation does not offer any of the following small credentials	11%	20
Massive open online course (MOOC) certificates (e.g. Udemy)	10%	7
Digital credentials (e.g. City & Guilds)	7%	6
Vendor-neutral certificates (e.g. CompTIA)	4%	5
Micro masters (e.g. edX)	3%	3

NB: Iterative proportional fitting was applied to the results of the of VET provider survey, to account for uneven representation of respondents per country. Respondents were given multiple-choice options.

Source: Survey of stakeholder representing education and training providers (n=187).

The respondents who indicated that they provided various types of credentials were then asked what number of specific credentials they have on offer. The responses showed once again that a great deal of uncertainty exists around microcredentials, since large numbers of respondents could not identify the range of different types of credentials they have on offer.

Table 19. **Number of small or alternative credentials offered by VET organisations**

	1-5	5-15	15-30	More than 30	Do not know/Cannot answer	Responses
Microcredentials (e.g. Digital Promise)	25%	21%	0%	28%	25%	21
Academic certificates (e.g. colleges)	23%	11%	0%	36%	29%	27

	1-5	5-15	15-30	More than 30	Do not know/Cannot answer	Responses
Massive open online course (MOOC) certificates (e.g. Udemy)	37%	19%	7%	19%	19%	9
Nano degrees (e.g. Udacity)	50%	0%	50%	0%	0%	2
Digital credentials (e.g. City & Guilds)	62%	0%	0%	0%	38%	8
Digital badges (e.g. CNet Training)	42%	0%	24%	3%	31%	13
Open badges (e.g. IBM)	58%	10%	0%	0%	31%	9
Micro masters (e.g. edX)	1%	65%	0%	0%	33%	5
Professional certificates (e.g. CertiProf)	23%	36%	9%	21%	11%	47
Vendor-specific certificates (e.g. Cisco)	40%	19%	4%	7%	30%	17
Vendor-neutral certificates (CompTIA)	49%	0%	41%	1%	10%	7

NB: Iterative proportional fitting was applied to the results of the VET provider survey, to account for uneven representation of respondents per country.

Source: Survey of stakeholders representing VET providers (n=168).

In terms of collaboration in the delivery of microcredentials, the survey results indicate that they are being offered either by providers on their own (46%) or in partnership with other organisations, such as other formally recognised education and training providers, employers' organisations and private accredited providers. It is not so common for them to offer microcredentials created by other actors, for example companies offering vendor certificates (Table 20). However, desk research shows that offering microcredentials from other actors might be significant in some countries and sectors. For example, in Ireland there is a national agreement to make available some international certifications such as Adobe and Microsoft, and individual providers also create their own programmes incorporating such credentials (Chapter 5, Table 28).

Table 20. **How VET providers deliver microcredentials, alone or in collaboration**

How microcredentials are delivered	% Of total responses	Count
On their own	46%	46
In partnership with formally recognised education and training providers	33%	33
In partnership with employers' organisations	22%	22
In partnership with private accredited providers	19%	15
From formally recognised education and training providers	12%	13
In partnership with private awarding bodies (e.g. City & Guilds)	7%	3
From employers' organisations	7%	7
From big technology companies (e.g. Google, Microsoft)	7%	7
In partnership with big technology companies (e.g. Google, Microsoft)	7%	8
From private accredited providers	5%	7
In partnership with private non-accredited providers	4%	5
From Edtech companies	4%	3
In partnership with Edtech companies	2%	1
From private non-accredited providers	1%	2
Through a platform such as Coursera or Future Learn	0.03%	1

NB: Iterative proportional fitting was applied to the results of the VET provider survey to account for uneven representation of respondents per country. This question was answered by respondents who provided any type of microcredential. Respondents were given multiple-choice options.

Source: Survey of stakeholder representing VET providers (n=78).

The survey results indicate that microcredentials exist across a broad range of sectors such as engineering, manufacturing, construction and ICT, as well as service-focused sectors such as health, education, business administration and law. They are also some for generic programmes and qualifications. Only 14% of survey respondents indicated that they offered microcredentials in all fields; this shows that providers tend to concentrate on specific fields of education, which may be related to their general pattern of provision. The findings of the interview programme support these results, with the sectors most commonly mentioned as being particularly engaged with or benefitting from microcredentials being manufacturing, ICT, education, healthcare, transportation and food and hospitality.

Table 21. **Fields of education in which microcredentials are most commonly issued by VET providers**

Fields of education	% of total responses	Count
Information and communication technologies (ICT)	21%	23
Engineering, manufacturing and construction	21%	29
Services	18%	18
Health and welfare	17%	16
Generic programmes and qualifications	17%	15
Education	16%	15
Business, administration and law	16%	15
Agriculture, forestry, fisheries and veterinary	12%	14
Social sciences, journalism and information	7%	5
Arts and humanities	5%	4
Natural sciences, mathematics and statistics	5%	4

NB: Iterative proportional fitting was applied to the results of the VET provider survey to account for uneven representation of respondents per country. This question was answered by respondents who provided any type of microcredential. Respondents were given multiple-choice options.

Source: Survey of stakeholders representing VET providers (n=78).

Box 15. **Microcredentials at RAFMENNT Electrical VET Centre in Iceland**

RAFMENNT is a VET centre for electricians and electronic technicians in all industries and sectors, in the fields of telecommunication, information technology, audiovisual, broadcasting and the creative industries (CI) in Iceland.

The centre offers courses for skilled electricians and electronic technicians who have completed their education, either their trade education and/or their trade master education, as well as for telecom, AV, IT, broadcast and CI technicians. RAFMENNT is also currently developing a health and safety micro-skills programme for the creative industries.

Source: RAFMENNT.

Box 16. **Modularised education at Vilnius Vocational Training Centre of Technologies in Lithuania**

Vilnius Vocational Training Centre of Technologies (VTMC) is a vocational training institution that has concentrated its efforts on actively modernising practical training opportunities to prepare the most in-demand types of specialists in engineering, IT and computer, business and financial, and visual technology for national and international markets. To achieve this goal, the centre actively cooperates with business, developing types of apprenticeship training, and specialist IT training initiatives.

VTMC is licensed to provide 49 formal vocational education programmes in secondary education, continuing vocational education (CVET, adult education) and initial vocational education (IVET).

Currently, training is provided by three departments at the centre: Energy and Mechatronics, Transport and Business, and Information and Visual Technology. More than 700 students study in these departments each year, taught by 54 vocational teachers and 22 subject teachers.

Source: Vilnius Vocational Training Centre of Technologies.

A more detailed overview of the situation in terms of the use of microcredentials in the case study countries is presented in Table 22. .

Table 22. **How, and to what extent, are microcredentials used in labour market-related education, training and learning?**

Country	Engagement with microcredentials
Finland	Continuing education is a general term for various courses aimed at increasing and supplementing individual competences. This type of education is not compulsory, although some areas require qualifications to be completed and updated from time to time. The term often refers to in-service training. Microcredentialling is a relatively new tool for structuring short-term educational provision.
France	Microcredentials are, for the time being, not well developed in all education sectors. They are largely concentrated in higher education, especially within private institutions such as business and engineering schools. The first microcredentials to be identified as such appeared in France over recent years but, for the moment, none is listed in the two national qualifications catalogues (RS and RNCP). Innovative media-based devices such as microcredentials or others such as open badges are, for the time being, disseminated within specific sectors of education.

Country	Engagement with microcredentials
Germany	Credentials for short courses are supplementary to regular VET in Germany. They are requested as additional training if a company has special requirements due to its work tasks. Additional training courses such as this are offered by the inter-company vocational training centres. These centres have emerged as venues for providing complementary centralised vocational education and training Their roles include being responsible for the centralised instruction of apprentices in the skilled trades. Comparable courses are also offered in other fields, for example, in industry and agriculture. The increasing specialisation of small and medium-sized enterprises (SMEs) has made it necessary for education centres to provide additional programmes, allowing all elements of vocational education and training to be covered. This helps to ensure the ability of SMEs to provide vocational education and training, and thereby makes an important contribution to safeguarding the supply of skilled labour.
Ireland	Interest in microcredentials is growing in Ireland. In 2018, it was reported that over 5,000 training and education programmes for businesses had been delivered in 2017 by the Skillnet Network. Of these, over 50% were non-formal and offered some kind of industry-specific microcredentials. At what is termed the 'third level' ([27]) in Ireland, a 2019 study reported that digital badges had been most popular in the academic and information technology (IT) sectors. The National Forum for the Enhancement of Teaching and Learning in Higher Education (which develops and provides teacher training) has been a key driver of digital badges within the education system, developing a specific digital badge system for Irish higher education. This embracing of digital badges to improve teaching and learning in higher education is an interesting aspect of developments. The study also found that around 30% of third-level institutions at the time offered digital badges of some kind. These digital badges vary considerably between institutions, but a large proportion have been developed through a university or national project.

([27]) 'Third-level' education includes all education after second-level, encompassing higher education in universities and colleges and further education via the Post Leaving Certificate (PLC) and other courses.

Country	Engagement with microcredentials
Netherlands	In the Netherlands, experiences with microcredentials are mainly related to higher education. For example, there is a pilot project attempting to allow learners to take modules without enrolling in full higher education programmes. Learners receive certificates for smaller learning units, which are not recognised as formal education qualifications (Kerver and Riksen, 2016). SURF is developing an infrastructure through which Dutch education institutions can issue digital certificates, called edubadges. In this infrastructure, education institutes and schools look out for badges that are linked to the learning outcomes of their curricula. In this way, they offer people the opportunity to determine their personal values and ground them in badges themselves. Microcredentials have been piloted in four VET schools. Two schools (Albeda and mbo Rijnland) issue edubadges to students who carry out additional work on 21st-century skills that were not part of the formal curriculum. These include skills such as collaboration and entrepreneurial behaviour. In the volunteering sector, with its many linkages with VET-schools, badges are offered for volunteers who want to present their skills. Volunteering organisations offer the necessary infrastructure for their volunteers to express their strengths and facilitate them in articulating these strengths in concrete and demonstrable skills, including the linkage to a specific level of functioning.
Poland	Microcredentials are being used in the labour market in Poland for continuous professional development. The extent to which they are used within companies depends largely on the size and the level of internationalisation of the company. Large and international corporations often use digital badges as human resources development policy tools. Regulated qualifications are understood as qualifications established by legal regulations, awarded outside the formal general, vocational and higher education systems. Examples include: Diver – class one/two/three (Divers' Qualifying Commission of the Director of the Maritime Office in Gdynia); Tax advisor (National Examination Board on Tax Counselling, after having passed the examination for becoming a tax advisor) Market qualifications are also included in the Polish integrated qualifications system. Some of these are small enough to be considered microcredentials. They are developed and awarded by various social organisations, associations, professional groups or companies, but in order to be included in the IQS Register, they must meet the formal requirements described in the Act of 22 December 2015 on the Integrated Qualifications System (the IQS Act). Examples include: Certificate of risk management of the Warsaw Institute of Banking (Warsaw Institute of Banking); ECDL Certificates (ECDL Poland) (Dębowski, 2018)

Country	Engagement with microcredentials
Slovenia	One of the types of microcredentials commonly used in the labour market in Slovenia is supplementary qualifications ([28]). These supplement an individual's competences at the level attained and in a specific professional field and are tied to the needs of the labour market, based on some existing qualification and with an emphasis on upskilling or reskilling. They focus only on the exact needs of employers and are not intended to acknowledge transversal or general skills. Another type of qualification that shares some characteristics with microcredentials can be found within CVET, where short programmes have been developed since 2017. They are prepared in close cooperation with employers to upskill employees to perform specific tasks, as well as to upgrade and modernise certain concrete professional skills. They focus entirely on vocational and professional competences, with 50% of the curricula being conducted at workplace and the other half in school. CVET short programmes last for a maximum 6 months and are prepared at the same educational level (ISCED or EQF) as initial programmes at upper secondary and tertiary level (higher vocational programmes). Microcredentials can be used in the procedures for the recognition of previously acquired knowledge as part of flexible learning pathways, or as a pathway to qualification or retraining at the same educational level. These refer to the system of national vocational qualifications. This enables citizens to have their vocational competences verified, but levels of education cannot be gained through this option. Adults may also gain numerous VET or general competences by enrolling in non-formal courses provided in the educational services market by private entities or public schools.

([28]) A supplementary qualification is a qualification that supplements an individual's competences at the level attained and in a specific professional field and is tied to the needs of the labour market. The Slovenian Qualifications Framework Act (2015) provides that an application for the inclusion of a supplementary qualification in the SQF may be submitted by an employer, a group of employers or by the Employment Service of Slovenia.

Country	Engagement with microcredentials
Spain	In Spain, there has been little public discussion of the question of developing microcredentials using this term, but the concepts of short courses, free courses or training 'pills' are important developments, especially at university level or in continuing education. Two thirds of Spanish VET providers surveyed identify part of the training they offer as being microcredentials, particularly professional certificates, academic certificates and vendor-specific or vendor-neutral certificates. Among the most important initiatives in Spain, the most important is MiríadaX, as the most significant microcredential platform that reaches more than 7 million students and has influence in Spain, Portugal and Latin America. MiríadaX is promoted by Telefónica, the international telephone company, which also has its own training platform, Universitas, offering courses in microcredential format.

Source: Prepared by Cedefop, based on case studies.

The case study and interview data suggest that microcredentials are particularly relevant in adult education, and that adult training centres engage with them, as indicated by respondents from Denmark, Germany, Ireland, Hungary, the Netherlands and Finland. All European countries have some sort of adult education and training provision, and a variety of adult training centres provide some sort of certificates that fit into the definition of microcredentials. For example, adult vocational training in Denmark is mainly provided in the form of AMU training courses (AMU means training for the labour market; see the box below). These courses can fit the definition used by this study but were not referred to as such by interview respondents. Denmark puts a specific focus on adult education and training, as this serves a triple purpose:

(a) contributing to the maintenance and improvement of the vocational skills and competences of participants, in accordance with the needs on the labour market and the further development of participant competences;
(b) contributing to solving labour market restructuring and adaptation problems, in accordance with the needs on the labour market from a short- and a long-term perspective;
(c) giving adults the opportunity to upgrade their labour market competences as well as their personal competences through the possibility of obtaining formal competences via vocational education and training.

Box 17 **AMU training courses in adult vocational training in Denmark**

Denmark's Ministry of Labour supports and directs AMU training courses together with social partners, but the courses are run by financially independent training institutions (AMU centres or technical colleges). AMU is specialised training for low-skilled adults. The training methods take their starting point from the actual working situation of the trainee. Classroom teaching has been largely scrapped in favour of learning in workshops in a way which resembles the work conditions within a company. About 250 000 adults participate in AMU courses each year; half of them are workers with only a basic school education.

AMU provides training in almost all trades, industries and services. Examples include building and construction (e.g. concrete technology); the metalworking industry (e.g. welding and CNC-machinery); food and beverages (e.g. operating computer-controlled equipment); as well as auto mechanics, textiles and electronics. A total of 56 different trades and industries are covered.

Two types of training products are offered. The first is standard courses at all levels, ranging from introductory courses to highly specialised courses in advanced technologies. The second is tailor-made courses for companies, municipalities and the employment service. AMU applies more than 1,900 individual standard curricula, which are nationally acknowledged. The curricula are interconnected as modules leading to specialisation. Modules have a duration of between 1 and 6 weeks.

The updating of courses and the development of new training programmes is mainly the responsibility of a number of tripartite trade committees. The committees monitor their specific trade area and evaluate existing training. When new development needs are identified, experienced AMU trainers and other specialists are hired for the task of developing new curricula, which must then be certified by the Minister of Labour. Complete renewal of curricula takes place an average of every 2-3 years. Further adaptation of the curricula takes place at each AMU training centre to ensure that their training programmes meet the specific needs of the local labour market and learners.

Source: AMU.

Microcredentials can also be offered by various national and local organisations, in collaboration with education and training bodies, to resolve issues such as skills gaps in the workforce or rising unemployment numbers. One such initiative is the Scottish Funding Council's additional funding for universities in its upskilling initiative (Box 18).

Box 18. **Scottish Funding Council microcredentials funding in upskilling**

The Scottish Funding Council announced additional university upskilling funding for microcredentials during the 2020-21 academic year through the National transition training fund (NTTF). All additional upskilling funding was tied to microcredential activity and could not be used for any curriculum/course development.

The GBP 25 million National transition training fund aims to tackle the rise in unemployment in adults aged 25+ by offering short, sharp training opportunities for people to learn in-demand skills. It will provide adults with tailored support to identify relevant training and employment opportunities, followed by funded training to match each individual's needs. This training will be made up of a range of smaller initiatives working in the areas of the economy where there is the greatest need for additional skilled staff.

The funding was aimed at universities that engage in upskilling and reskilling activities and which had the capacity to provide more agile support to employees and employers. Universities were expected to be more responsive to local and national economic challenges, dealing with the economic crisis brought about by COVID-19 and the resulting unemployment.

Source: Scottish Funding Council.

4.4. Learners engaging with microcredentials from formal VET providers

Key findings

- Adults in employment are key users of microcredentials, while unemployed people and those in the initial phases of education are also important users. Microcredentials make it possible to acquire new skills (e.g. for career progression or to undertake new tasks related to new work processes which might require fairly narrow, specific skills) and to validate existing skills they may have acquired during their employment or elsewhere.
- The overall findings from the case studies suggest that microcredentials tend to be used predominantly by adults in continuing VET and as supplements to full qualifications.

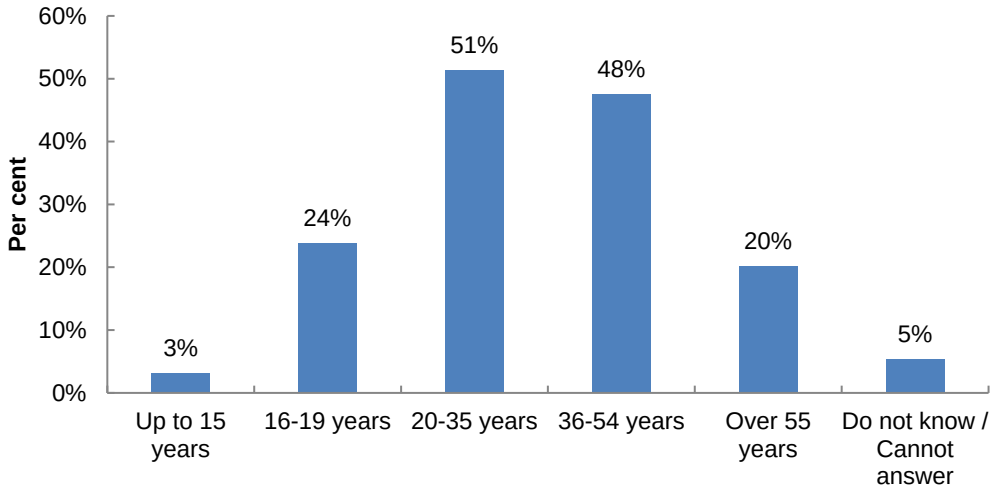
The study showed that the key recipients of microcredentials are working-age adults. Based on the responses gathered through the survey of stakeholders representing VET providers, the most common recipients are learners between the ages of 20 and 35 years (indicated by 64% of respondents) and those aged 36-54 (54%) (Figure 11). This might suggest that microcredentials may be playing an important role during the early phase of people's working lives.

40% of respondents indicated that microcredentials are taken up by 16 to 19 year-olds, a group either still in the initial compulsory phase of education and training, in a transition stage into the labour market, or who may have left education

early and be re-engaging with it. This suggests that microcredentials may not be restricted to adults but may play a wider role in IVET. This is the case in some countries and for programmes relating to certain occupations, such as the ICT sector in Ireland.

Education and training providers indicated that microcredentials are taken up by a broad range of people, both in employment and unemployed (Table 23). People in full-time employment may be the ones most likely to take them up while the self-employed use them less often.

Figure 11. **Age groups of learners receiving microcredentials, by % of VET centre representatives reporting**



NB: Iterative proportional fitting was applied to the results of the VET provider survey to account for uneven representation of respondents per country. Seven responses for 'up to 15 years'; 31 responses for '16-19 years; 50 responses for '20-35 years'; 42 responses for '36-54 years'; 22 responses for 'over 55'; and three responses for 'do not know/cannot answer'. Respondents were given multiple-choice options.

Source: Survey of stakeholders representing VET providers (n=78).

Table 23. **Groups of learners receiving microcredentials offered by education and training providers, by employment status**

Groups of learners	% of total responses	Count
Employed full-time	55%	54
Unemployed (less than 12 months)	44%	38
Employed part-time	35%	32
Long-term unemployed (more than 12 months)	34%	30
Self-employed	28%	26
Retired	3%	3

NB: Iterative proportional fitting was applied for VET provider survey results to account for uneven representation of respondents per country. Respondents were allowed multiple choice options. This question was answered by respondents who provided any type of microcredentials.

Source: Survey of stakeholders representing VET providers (n=78).

In terms of skills levels, microcredentials appear to be offered in a wide variety of contexts from elementary occupations to technicians and professionals (Table 24).

Table 24. **Groups of learners receiving microcredentials offered by education and training providers, by skills level ([29])**

Groups of learners	% of total responses	Count
Technicians and associate professionals	34%	39
Professionals	34%	30
Elementary occupations	32%	27
Services and sales workers	22%	21
Plant and machine operators and assemblers	20%	23
Managers	18%	16
Clerical support workers	17%	17
Craft and related trade workers	11%	15
Skilled agricultural, forestry and fishery workers	8%	13
Armed forces occupations	1%	1

NB: Iterative proportional fitting was applied to the results of the VET provider survey to account for uneven representation of respondents per country. Respondents were given multiple-choice options.

Source: Survey of stakeholders representing VET providers (n=78).

Interviewees (such as in Denmark, Germany, Ireland, the Netherlands and Finland) tended to identify the typical recipient of a microcredential to be an adult who is in employment and who, in most cases, already has a full qualification ([30]). With regard to why microcredentials might be a solution to people's skills needs, the Hungarian trade union explained that recipients might want to upgrade their skills, find better opportunities, get a promotion or transition to a different job or sector. These adults value and need microcredentials that are recognised both across sectors and between countries, as it is now more common than ever for

([29]) Iterative proportional fitting was applied to the results of the VET provider survey to account for the uneven representation of respondents per country. Respondents were given multiple-choice options.

([30]) Findings should be treated with caution, as highlighted during Cedefop's conference on microcredentials.

individuals to move not only between jobs and sectors, but even between countries. Some interviewees also indicated that microcredentials can be relevant to individuals with lower skills levels, which aligns with the findings from the survey. As one Dutch private provider suggested, they are relevant to adults who have previously dropped out of formal education and training, spent a substantial number of years in employment and can no longer enrol in a programme leading to a full qualification due to personal responsibilities. This was also reflected by the Estonian qualifications authority, who further elaborated that employees are seldom able to leave their jobs for a year or two, but are able to update their knowledge, skills and competences through shorter learning activities. Several respondents suggested that, in many cases, learners also need to acquire very specific and narrow competences that are directly related to their job and day-to-day tasks.

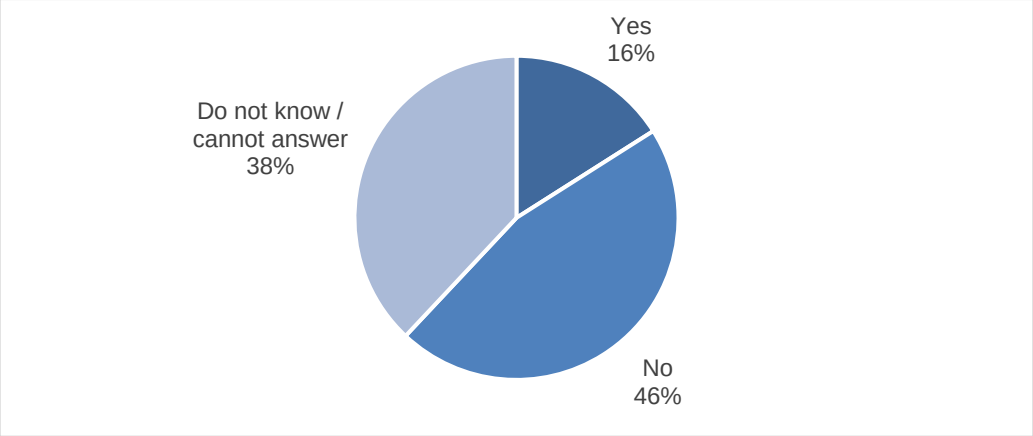
4.5. COVID-19 and stakeholder engagement with microcredentials

Key findings

- The COVID-19 pandemic has accelerated online working and learning and introduced time, money and labour-saving technologies;
- Most stakeholders did not think that the COVID-19 pandemic had had any effect on how they engage with microcredentials or did not know whether it had or not.
- In cases where the COVID-19 has had an effect on how stakeholders engage with microcredentials, the pandemic has increased awareness of them.

COVID-19 accelerated patterns and trends that were already having an impact on the future of work and learning, by introducing time, money and labour-saving technologies. Digital skills became essential for employees as many had to transition to working from home. Enrolments on MOOC platforms have increased dramatically with the top three MOOC providers (Coursera, edX and FutureLearn) registering as many new users in April 2020 as they did during the whole of 2019 (Class, 2020). However, the survey results suggest that the COVID-19 pandemic has had a lesser impact on how various stakeholders engage with microcredentials than is suggested in the large body of the literature. The surveys targeting national authorities, VET providers and organisations representing employers and employees show that most respondents either did not know what effects the pandemic had on microcredentials or did not think that the pandemic impacted how their engagement (Figures 12 to 15).

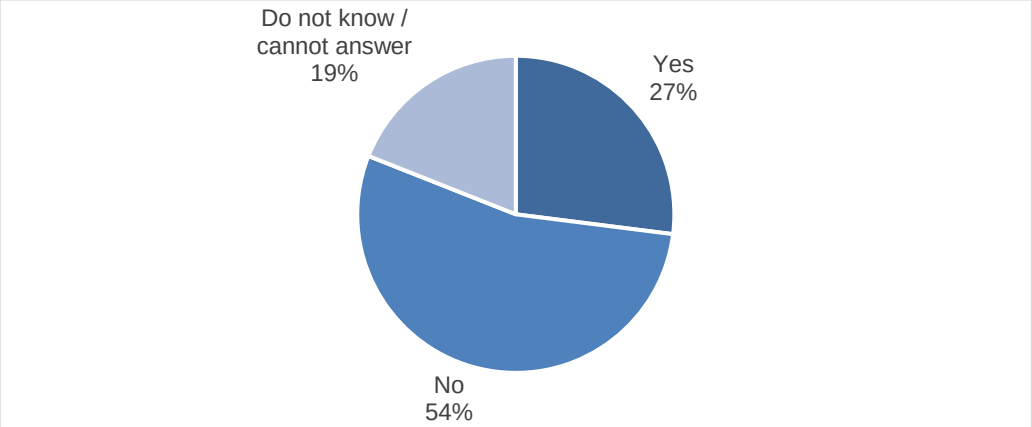
Figure 12. **Has the COVID-19 pandemic had any effect on how national authorities engage with microcredentials?**



NB: This question was answered by 74 respondents: 34 respondents for 'do not know/cannot answer', 28 responses for 'no', and 12 responses for 'yes'.

Source: Survey representing national authorities (n=74).

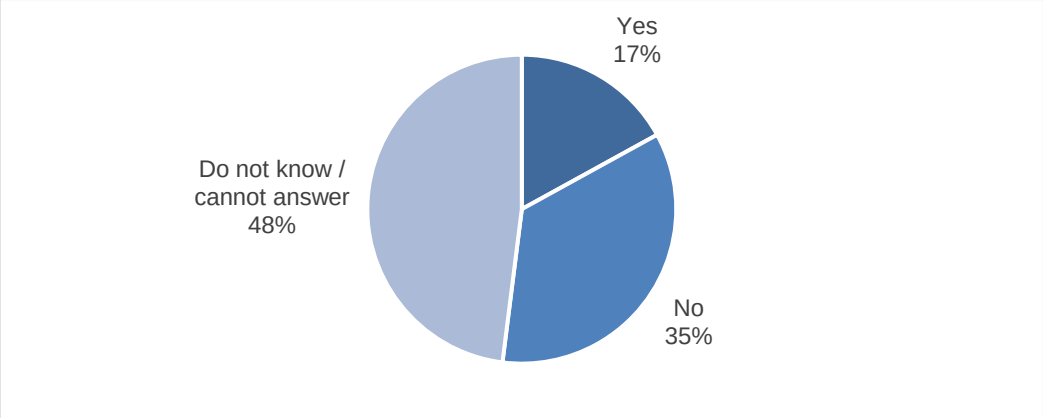
Figure 13. **Has the COVID-19 pandemic had any effect on how your organisation engages with microcredentials?**



NB: Iterative proportional fitting was applied to the results of the VET provider survey to account for uneven representation of respondents per country. 31 responses for 'yes', 15 responses for 'no', and 28 responses for 'do not know/cannot answer'.

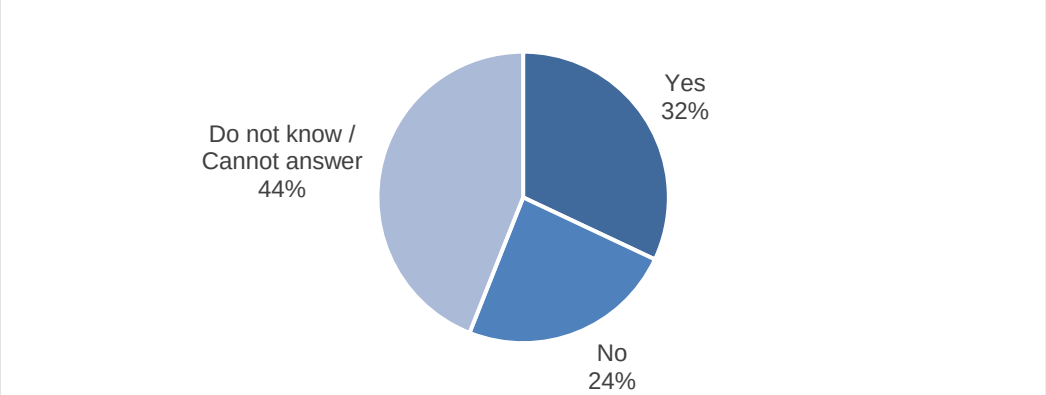
Source: Survey of stakeholder representing VET providers (n=187).

Figure 14. **Has the COVID-19 pandemic had any effect on how employers in your sector(s) engage with microcredentials?**



NB: Five responses for 'Yes', 10 responses for 'No' and 14 responses for 'Do not know/Cannot answer'.
Source: Survey of stakeholders representing employers (n=29).

Figure 15. **Has the COVID-19 pandemic had any effect on how employees in your sector(s) engage with microcredentials?**



NB: 21 responses for 'Yes', 16 responses for 'No' and 29 responses for 'Do not know/Cannot answer'.
Source: Survey of stakeholders representing employees (n=66).

On the most common effects of the COVID-19 pandemic, there is a consensus among survey participants that the main change relates to an increase in awareness of the potential of microcredentials. Further, according to their representatives, there were some cases where national/regional authorities launched initiatives and projects on microcredentials, and they were more frequently referred to policy discussions and strategic documents ([31]). In parallel, more employees were enrolled in learning activities leading to microcredentials or including them in their CVs, while there was a rather limited number of VET providers which started providing microcredentials or improved their offer.

([31]) The latter can be also attributed to the intensification of the discussion on microcredentials at European level and the launching of the EC's public consultation.

CHAPTER 5.

Microcredentials outside/independent of formal education and training

This chapter discusses the extent to which microcredentials are evolving outside and independently of formal education and training systems, as in offered by companies, professional organisations and others. We first try to capture how, to what extent and in which sectors labour market stakeholders engage with microcredentials. We then proceed in Section 5.2 to identify the main purposes and roles of non-formal microcredentials; Section 5.3 discusses the main groups of learners engaging with them. The final sub-chapter covers the extent to which microcredentials offered by labour market stakeholders relate to task and competence certificates.

5.1. Labour market stakeholder engagement with microcredentials

Key findings

- Labour market stakeholders mainly offer microcredentials in cooperation with formal VET providers.
- Microcredentials are mostly used in sectors where employees have to adapt quickly, learn new technologies and offer new products, like business management, ICT, logistics, health care, education and sustainable technologies.

Microcredentials evolving outside formal education and training are gradually gaining more attention, with the number of learners participating in such learning experiences growing. Although labour market stakeholders prefer to cooperate with formal education providers, non-formal microcredentials can have significant exchange value, often higher than formal ones. For example, when the stakeholders surveyed were asked how important it is that microcredentials are referenced to national qualifications systems, only a quarter of companies, one third of employer organisations and one third of employee organisations stated that it was very important to them.

According to the desk research, microcredentials are increasingly used by both employees and employers as a way to stand out in a highly competitive market (Fong; Janzow and Peck, 2016). For instance, the use of digital badge

credentials is on the rise as well as their applicability for workforce development (Matthews and Troy, 2019). To win the war for talents and stay ahead of their competition, companies offer training and development programmes, especially to younger generations such as millennials or specific target groups such as professionals or executives (Resei et al., 2019). Big multinational technology companies such as IBM, Microsoft and Adobe, are actively using digital badges to train their workforce. IBM was one of the first companies to partner with a higher education institution, North-Western University in the US, to develop its digital badge programme. As of July 2018, IBM has provided over one million of these badges (Daniels, 2019).

The main providers of microcredentials in the labour market include large companies, industry associations, start-ups, online learning platforms, non-governmental organisations and international organisations. Medium- to large-sized and multinational companies, which have the resources and large workforce that needs to be trained, are particularly active in offering microcredentials. For example, Deutsche Telekom has a massive open online course called the Magenta MOOC (Box 19), while Orange has several learning programmes targeting internal and external audiences (Box 20). Google provides various online learning programmes targeted at prospective employees and future talent pool ([32]). Start-up companies are also emerging as providers of microcredentials: Kiron Open Higher Education is a social start-up founded in 2015 offering custom-made online study programmes using MOOCs and open educational resources (OER's). Through their online learning platform, they provide free education to refugees worldwide and skills programmes to help learners prepare for university and the job market (Kiron Education, 2021).

Often microcredentials providers design and deliver their learning experiences in partnership with diverse stakeholders including industry leaders. For instance, Udacity developed its nanodegrees in partnership with companies such as Facebook, Google, AT&T, Cloudera and Salesforce. This helps Nanodegrees to deliver in-demand skills while ensuring strong industry backing (Shen, 2014). FutureLearn offers some of its programmes in collaboration with private companies and organisations such as Cisco, Salesforce, Kering, Tableau, Royal Photographic Society and NNEdPro (FutureLearn, 2021). Similarly, microcredential providers also partner with universities, as in the case of eCampusOntario, Canada-based non-profit which developed its microcredentials in collaboration with university and industry partners (Horton, 2020). There are examples of partnerships with formal

([32]) Google Career Certificates are professional courses that prepare candidates for high-paying and high-growth job in fields such as project management, data analysis and UX design.

VET providers, as in the cases of Ireland and Spain (Table 22). In Czechia, a pilot in initial VET is testing if international ICT certification standards from Autodesk, Cisco, Microsoft, ECDL/ICDL and Oracle) can be recognised within the profile part of the Maturita examination (Cedefop, 2021a).

The survey of employers' organisations showed that 44% of the participating organisations offer credentials of short volume of learning, 43% do not, while the rest did not know, showcasing again the uncertainty around the term. The survey of organisations representing employees revealed that most organisations surveyed (61%) did not offer any kind of small credentials, 18% did not know or could not answer and only just over 20% offer short learning experiences leading to some form of credential. Employer organisation representatives also indicated that employers in their sector(s) use microcredentials at least sometimes.

A great variety of awards are offered by employer organisations and companies, including vendor-specific (e.g. Cisco) and vendor-neutral (e.g. CompTIA) certificates, microcredentials, digital badges, MOOC certificates, open badges (e.g. CNet Training) and IT certificates. The most common are professional certificates (e.g. CertiProf) and academic certificates (e.g. colleges).

The study showed 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 competences. In relation to the delivery of microcredentials, labour market stakeholders (employer and employee organisations) most often outsource this service to formally recognised education and training providers or jointly provide it. Labour market stakeholders also cooperate with private accredited providers or offer microcredentials on their own.

Although online platforms are rapidly expanding, the survey showed that they are not so often selected by employer and employee organisations as a way to offer microcredentials. This may be an indication that there is still plenty of room for expansion for such platforms.

Table 25. **Collaborative ways employer organisations offer microcredentials**

Means by which microcredentials are offered	% of total responses	Count
In partnership with formally recognised education and training providers	63%	10
In partnership with private accredited providers	44%	7
From formally recognised education and training providers	38%	6
By the organisation on its own	31%	5
In partnership with employers' organisations	31%	5

Means by which microcredentials are offered	% of total responses	Count
From private accredited providers	31%	5
In partnership with a big tech company (e.g. Google, Microsoft)	25%	4
In partnership with private non-accredited providers	25%	4
From employer organisations	19%	3
From a big tech company (e.g. Google, Microsoft)	19%	3

NB: Respondents were given multiple-choice options. The table includes the most 'popular' answers.
Source: Survey of stakeholders representing employers (n=16).

Table 26. **Collaborative ways employee organisations offer microcredentials**

Means by which microcredentials are offered	% Of total responses	Count
By the organisation on its own	47%	7
In partnership with formally recognised education and training providers	33%	5
From formally recognised education and training providers	33%	5
From private accredited providers	20%	3
In partnership with private accredited providers	20%	3
Through a platform such as Coursera or FutureLearn	20%	3
From private awarding bodies (e.g. City & Guilds)	13%	2
From private non-accredited providers	7%	1
From employer organisations	7%	1
From Edtech companies	7%	1
In partnership with private non-accredited providers	7%	1
In partnership with Edtech companies	7%	1
In partnership with a big technology company (e.g. Google, Microsoft)	7%	1
Other (partnerships with organisations that are accredited and formally recognised)	7%	1

NB: Respondents were given multiple-choice options.
Source: Survey of stakeholders representing employees (n=15).

The study suggested that international certificates at times enjoy wider recognition in the labour market than certificates from public institutions. For example, in Denmark a wide use of international certificates in project management – specifically, Microsoft and Google certificates – was reported. This is partly attributed to the fact that developing learning activities that lead to formal certificates often takes longer and employers may not be willing to wait.

The study signalled that certified short courses and alternative credentials are increasingly being used in sectors that are undergoing rapid technological changes or influenced by legislative, societal or environmental ones. Given the focus on twin transitions in Europe, many occupations, regardless of sector, will undergo greening and digitisation that require the workforce to adapt quickly and learn continuously in order to respond effectively to these shifts. Microcredentials can help to make knowledge, skills and competences visible and assessable, benefiting especially sectors where employees have to adapt quickly, learn new technologies and offer new products. These sectors include business management, ICT, logistics, healthcare, education, sustainable technologies and manufacturing. The country-specific case studies looked into the ICT, education and manufacturing sectors, revealing interesting activities relating to microcredentials. These often emerge as an additional means of increasing the supply of education and training in a highly competitive market in which labour needs are constantly changing ([33]). For example, in Denmark short courses have traditionally been used in technical fields such as metalworking and transport, which require many certifications. In the transport sector, a driving licence is a basic requirement, but specific certifications are also necessary for transporting dangerous goods or using technical aids (e.g. cranes), for which people need to have a proper education and competences.

Labour market stakeholders participating in the study have also emphasised the growing need for education and training that cuts across occupational structures and qualification levels: agile work processes require employees with different occupational profiles to work better together. Since full qualifications often focus primarily on developing the specialised skills necessary for a particular profession or job, microcredentials should ideally focus on developing skills and competences that can be transferred from one occupation or sector to others.

For an extensive list of practices relating to microcredentials in labour-market-related education, training and learning, see Annex 1.

5.1.1. Digital credentials online platforms

The growing demand for and supply of non-formal and informal course delivery led private technology companies to look for ways to make offers more recognisable and transparent. Therefore, an entirely new market for digitally signed credentials has emerged. Different credentialing software platforms enable private companies, online learning platforms, and education institutions to digitally track and

([33]) The study placed special focus on the ICT, manufacturing and education sectors. Examples of how microcredentials operate in these sectors can be found at the end of this section.

administer professional licensure, certifications and other types of documents which certify that employees and individuals possess certain specialised skills or qualifications. These credentialing platforms may provide different services, depending on the specific needs of organisations, including:

(a) employee continuous professional development;
(b) tracking certification expiry dates;
(c) offering digitally signed credentials as part of their in-house learning and training programmes that are offered for individuals inside and outside of their organisations.

Table 27 provides a list of the most popular digital credentialing platforms. Although most platforms are based outside Europe, their products can be used irrespective of geographic borders.

Table 27. **List of the most popular digital credentialing platforms**

Provider	Country
Accredible	USA
Credly	USA
CertifyMe	India
Certifier	USA
Badgr	USA
Certif-ID	Germany

Source: Desk research, compiled by Cedefop.

5.1.2. ICT sector

The increasing rates of digitisation and automation create skills gaps and require companies to constantly re- and upskill their employees to match the changing nature of the job market and roles better. Since the education system is unable to keep up with the speed of technological change, it creates a room for alternative providers including companies themselves, to offer microcredentials. For instance, Microsoft provides IT courses and credentials to its employees through Udacity, an online learning platform. At the same time, the value of traditional degrees is decreasing, especially in fast-changing industries such as IT. For example, given the high demand for coders, companies such as Apple and Google are hiring applicants without a university degree as long as they are able to code (Resei et al., 2019).

ICT companies are often known for their certification systems. They issue documents certifying participation in training and/or the achieved learning outcomes, for instance through a certification exam. ICT certifications can help

individuals quickly to gain and validate valuable skills and know-how, easing their career advancement. Some certifications are aimed more specifically at those working in IT. Some of the more popular examples of IT certificates ([34]) are:

(a) Amazon Web Services (AWS) Certified solutions architect – professional;
(b) Certified cloud security professional (CCSP);
(c) Certified information security manager (CISM);
(d) Certified information systems security professional (CISSP);
(e) Microsoft certified solutions associate (MCSA).

These types of certificates hold value as globally recognised achievements granted by large corporations. For more specific examples of company-led initiatives engaging with microcredentials, see the Boxes 19 and 20.

Box 19. **Magenta MOOC online training programme at Deutsche Telekom**

Magenta MOOC is an online training programme for employees of Deutsche Telekom. It combines online learning with real-life experience in which employees can directly interact with each other and work on business challenges together (Strube, 2018). Courses cover topics such as entrepreneurship, digitisation and design thinking. For its Magenta MOOC, Deutsche Telekom received one of the most prestigious international HRM awards, the Brandon Hall Group Award in Gold for excellence in the category of Best use of social/collaborative learning (Moussavian, 2018).

Source: Deutsche Telekom.

Box 20. **Orange Campus online school at Orange**

Orange Campus is an online school offering courses to both employees and external audiences on topics such as data/AI, cybersecurity, management and soft skills. Participants can take basic or advanced modules and gain specialised expertise leading to a certification or diploma. With the aim of addressing the digital skills gap in Europe and building a pool of talented workforce, Orange Campus also trains external audiences. To this end, the company has partnered with Microsoft AI school, along with Simplon and the Grande Ecole du Numérique, to deliver work-related skills training (Wright and Cohen).

Source: Orange Newsroom, issued by Wright and Cohen.

([34]) Based on desk research.

Table 28. **Use of microcredentials in the ICT sector**

Country	Examples
Finland	Ilona IT Ltd is a learning technology expert, reseller and educator, aiming to help customers use technology smartly. Its customers serve the educational sector at all grades from early childhood education to universities. An example is the Emill platform aiming to share and develop personal expertise alongside work. Ilona IT provides in-service training funded by the Finnish National Agency for Education (EDUFI) for teaching and guidance staff at different school levels, as well as commercial training relating specifically to various technological applications. Ilona IT is one of the first companies in Finland to develop digital open badges, though they are not offered for all types of training. The key is that the verification of competence must be relevant to the recipient of the open badge. In addition to badges of excellence, the company also offers badges for participation in, for example, education fairs and other events that they organise. Instead of competence objectives and assessment criteria, these tokens include, for example, the programme of the event as a souvenir.
Ireland	Microcredentials in the form of vendor certifications have an important role to play in entry to and progress within occupations within the ICT sector. Vendor certifications often form a key component of ICT qualifications through public provision. For example, Kerry College of FET offers the IT Support Technician programme, leading to a full-time, post-school leaving certificate. The programme bundles together a number of different certifications, which individually might be considered to be microcredentials, e.g. CompTIA A+1 (A+ 220-1001) – core series and Microsoft 365 Fundamentals (MS-900). MS 365 Fundamentals takes at least 150 hours of instruction, comprising six digital badges i.e. around 25 hours per badge. There is a national certification agreement for the provision of industry-recognised examinations and certifications related to digital skills. However, it is important to note that these credentials can be obtained in a wide variety of ways, for instance directly from Microsoft or through a variety of global and national partners.
Poland	Microcredentials are popular in sectors specialising in the development of IT technologies (software development, computer systems administration and IT management) or those heavily dependent on IT technologies (data science and research, digital marketing).
Slovenia	In the context of Project Munera 3 (2018-22), 86 schools across Slovenia implemented CVET programmes for employees, consisting of additional training, upskilling or reskilling, in order to keep up with labour market needs and increase employability and mobility among sectors. The programmes are implemented nationwide in the engineering, biotechnics and services sectors. At least 17 640 employees will be able to be involved in the project. 53 out of 136 training programmes are in the field of technology. Among these, many refer to ICT and its implementation within companies.

Country	Examples
Spain	Provision of training for certain digital skills often follows the microcredential approach. One example is courses to obtain a certification provided by large ICT companies, such as Cisco or Microsoft. However, the use of microcredentials for digital skills varies depending on the needs of the employer. Although certification by large ICT companies might be valuable for ICT specialists, the need to certify the digital skills of other employees is lower. One example is the Digitalizate programme, an online training platform created by SEPE and Fundae offering online short courses designed by industry leaders.

Source: Prepared by Cedefop, based on the case studies.

5.1.3. Teacher continuing professional development

Microcredentials are commonly used as part of teachers' continuing professional development (CPD). While many educators choose to upgrade their expertise on voluntarily, in certain countries CPD is a requirement in order to retain the right to teach. In Poland, teachers should participate in courses and training to be eligible for professional advancement. In some contexts, digital badges are also used to develop and recognise the competences of teaching staff (Cedefop, forthcoming-d). For example, in 2017 the city of Helsinki launched badges for teaching, which comprise 3 skill levels and a total of 21 evidence-based learning badges. So far, the scheme has granted over 36 000 skills badges to more than 4 500 staff members. Similarly, in Ireland, the National Forum for the Enhancement of Teaching and Learning in Higher Education has spearheaded initiatives to develop a digital badge system for staff in further education and training. Some examples of microcredentials used in the education sector are listed in boxes 21 and 22.

Box 21. **National initiative on teachers' badges in Finland**

The National initiative on teacher's badges (2018-20) developed a national system of digital badges to support the recognition of professional competences for vocational teachers. The initiative aimed to establish a formalised ecosystem for recognition and to aid pre-service teachers in creating their personal path to CPD. The project was implemented at several higher education institutions on a national level and overseen by the education ministry. A constellation of open badges was created that contained six competence areas: learning and guidance, networking, working community, development, personalised learning, and assessment. The definition of these competences is based on several frameworks, such as the European Union's DigCompEdu (Redecker, 2017), as well as earlier experiences and processes such as the digital and pedagogical badges of (Kullaslahti; Ruhalahti and Brauer, 2019). The teachers' badge constellation is not yet in its final form. New competences are constantly being developed as open badges and added to the teachers' badge constellation. The network for teachers' badges is responsible for managing the process of adding new competences and badges to the constellation. The network

ensures the quality of the open badges chosen, including their objectives, criteria and competence (Cedefop, forthcoming-a).

Source: Cedefop s.d.a. [forthcoming].

Box 22. **Soft skills training and recruitment of adult educators in Europe**

Soft skills training and recruitment of adult educators (SOSTRA) ([35]) is a project funded by Erasmus+ in response to the new EU Council Recommendation on key competences for lifelong learning (2018). The project was developed in partnership by six organisations ([36]); two of these are based in Spain, the rest are from Italy, Poland, Romania and Finland. They aim to make the soft skills of adult educators visible. It combines digital and competence-based education to develop adult educators' soft skills. By relying on a digital open badge-driven learning process, the project allows the recognition of prior competences and the acquisition of new skills and knowledge. Participants can improve their competences in 15 key soft skills available in the six respective languages, complete self-reflective test, and receive a digital badge upon completion. Learning happens in a self-directed manner on Google sites using the open badge management system (OBF).

Source: SOSTRA project.

5.1.4. Manufacturing sector

The manufacturing and service industries also demand continuous learning, given that products and working conditions are subject to rapid change. With an increased rate of automation, digitisation and environmental concerns, manufacturing is undergoing transformation, requiring new skills and competences. For example, traditional car manufacturing is switching to the production of electric cars, which requires the use of IT technology and the latest scientific knowledge. New occupations are being created that require new and diverse sets of skills and competences. This is why leading car manufacturing companies such as Mercedes-Benz and BMW have developed their own in-house training programmes that target future hires to build a talent pool of qualified candidates with the right skillset. These examples are shared in boxes 23 and 24.

([35]) The SOSTRA project promotes the development and recognition of skills in European adult education using a digital open badge-driven learning process.

([36]) The six organisations are Häme UAS, School of Professional Teacher Education (HAMK SPTE), Finland; University of Córdoba (UCO), Spain; DEFOIN, Training for Employment and Insertion, Spain; The Hallgarten Franchetti Centro Studi Villa Montesca Foundation (FVM), Italy; Orange Hill (OH), Poland; and Centrul Pentru Promovarea Invatarii Permanente (CPIP), Centre for Promoting Lifelong Learning, Romania.

Box 23. **Mercedes-Benz DRIVE programme**

Mercedes-Benz DRIVE is 17-week programme for individuals wishing to pursue a career at a Mercedes-Benz dealership. The programme is quite competitive, due to the fact that the company covers the programme fee. Participants spend most of their time in the lab learning deductive reasoning, major vehicle components and systems. They also acquire skills and experience in diagnosing and repairing some of Mercedes-Benz's most advanced vehicles. Graduates of the programme can acquire the status of Systems Technician with 6 months' employment at an authorised Mercedes-Benz dealership. DRIVE training is available at five different locations in the US.

Source: Universal Technical Institute.

Box 24. **BMW Fasttrack student-paid training**

BMW Fasttrack student-paid training is a 12-week manufacturer-specific advanced training (MSAT) programme. Students learn the procedures, tools and standards of BMW service and gain the skills necessary to diagnose and repair BMW vehicles. Graduates can earn seven factory credentials and achieve a BMW Associate Level III certification after completing BMW-specific ASE testing and hands-on assessments. These training credentials are recognised by BMW retail centres across the US. The programme rotates its training fleet to ensure students learn on the latest models.

Source: Universal Technical Institute.

Table 30. **Use of microcredentials in the manufacturing sector**

Country	Examples
Finland	The development of microcredentials in the manufacturing sector is at an early stage. For example, Fortum, a leading energy company in Finland, founded its own academy to address its technological knowledge needs. The company's experience shows how businesses might require micro-level education and training solutions in addition to existing short-cycle education and training provision.
Germany	Certified short courses in manufacturing are particularly in demand, as products, work and working conditions are subject to rapid change. The sector requires a high degree of flexibility and the continuous development of knowledge, skills and competences. This is being propelled by digitalisation. Sector representatives are interested in the introduction of microcredentials for supplementary training.

Source: Prepared by Cedefop, based on the case studies.

Table 31. **Use of microcredentials in the education sector**

Country	Examples
Finland	In 2014, two schools of professional teacher education (Oulu University of Applied Sciences and HAMK University of Applied Sciences) joined forces with the VET provider Omnia, the Joint Authority of Education in Espoo. Together, these partners sought to restructure a CPD to design a competence-based professional development programme (PDP) that would support teachers in building working-life ICT skills and knowledge. The programme exceeded expectations in its first year, both in terms of quantity and quality. By August 2021, in-service teachers have applied for (and received evaluations for) 29 552 learning online badges; the number of pre-service applicants is equally impressive. Since 2015, badges have been applied in professional teacher education qualification programmes for VET pre-service teachers by individual schools of professional teacher education, managing their own badge factories. The exceptional success of PDP nationally has attracted heightened attention to digital badging and gamification in educational contexts.
Ireland	The National Forum for the Enhancement of Teaching and Learning in Higher Education has developed a specific microcredential system for the professional development of teachers in higher education, which is also open to staff in further education and training. The system, which was launched in 2018, comprises a range of 23 courses, each of which has been designed to require a maximum of 25 learner effort hours and four criteria (or learning outcomes), which equates to roughly 6 weeks of online learning. Courses can be taken in one of three modes – face-to-face blended, self-study, and online facilitated, although only five courses are currently available as self-study. Courses are run twice a year, so only self-study courses can be taken at any time.
Poland	Educational services leading to microcredentials in the education sector are usually organised by teacher training institutions (supervised by the education ministry), school textbook publishers and providers of IT solutions for schools. One of the largest non-public providers of such training, present on the market for over 19 years, claims that it provides training for over 90 000 teachers annually.

Source: Prepared by Cedefop, based on the case studies.

5.2. Non-formal microcredentials: purposes and roles

Key findings

- Non-formal microcredentials address the limitation of formal qualifications systems to respond promptly to rapidly changing labour market needs.
- The main purposes of microcredentials relate to upskilling and reskilling, recognising and validating existing knowledge, skills and competences, and improving employee motivation.

The study showed that the main purposes of microcredentials are upskilling and reskilling the labour force, meeting needs and skills gaps in the economy, improving employability and promoting lifelong learning. In the labour market, companies such as IBM, Google, Amazon, Cisco, Siemens, Microsoft, and Ernst & Young are increasingly offering microcredentials, using badges and micro-certification for employee and supplier training. According to Jean-Louis (Maxim, 2021), the main purposes of these microcredentials are to:

(a) up/reskill the workforce;
(b) address skills gaps among employees;
(c) retain and promote employees;
(d) attract new hires and stand out from competition;
(e) provide effective recruitment through competence-based hiring;
(f) increase return on learning investments;
(g) strengthen collaboration with colleges, universities and training providers;
(h) provide timely training to employees, customers and partners related to new technology, new business processes and new markets.

The desk research shows that digital badges can also help companies improve staff retention and better respond to their needs. Research suggests a strong link between empowered employees and their likelihood of remaining in a company. Hence, using digital badges, enterprises can better listen and respond to specific needs or skill gaps of their employees (Matthews and Troy, 2019). Technology companies such as IBM cite difficulties with finding the right talent for their jobs among university graduates (Leaser and Akers, 2018). Digital badges can help address urgent skill gaps in labour market sectors by allowing companies to train their employees in the exact skills required for the job. Companies use microcredentials as a training tool for re- and upskilling their workforce and developing highly needed skills and competences. They also provide learning and growth opportunities, especially for younger and entry level employees (Resei et al., 2019). Additionally, microcredentials help improve employer branding. By creating credentials and providing them to the public, companies can increase their

visibility as a brand and improve their image and reputation as an employer (Resei et al., 2019).

Employer organisations report that employers' main objectives for the use of microcredentials are to address skills mismatches and skills shortages within their company (64%); to respond to the changing needs of the company (55%); and to recognise and record the knowledge, skills and competences of employees (50%). Employee organisations highlight as the main reasons for employees to use microcredentials upskilling and reskilling and recognising and validating their existing knowledge, skills and competences. The survey revealed that microcredentials can serve more specific aims such as complying with health and safety standards.

Table 29. **Main reasons for employers to use microcredentials**

Reason for using microcredentials	% of total responses	Count
To address skills mismatches and skills shortages within the company	64%	14
To respond to the changing needs of the company	55%	12
To recognise and record the knowledge, skills and competences of employees	50%	11
To improve the competitiveness of the company	41%	9
To facilitate the recruitment, promotion and mobility of employees within the workplace	32%	7
To improve employee motivation	32%	7
To comply with industry standards (e.g. to make use of specific machinery, ICT security)	32%	7

NB: Respondents were given multiple-choice options.
Source: Survey of stakeholders representing employers (organisations representing employers) (n=22).

Table 30. **Main reasons for employees to use microcredentials**

Reasons for using microcredentials	% of total responses	Count
To upskill and improve their knowledge, skills and competences relevant to their job	62%	16
To reskill and gain new knowledge, skills and competences	62%	16
To recognise and validate their existing knowledge, skills and competences	54%	14
To attain promotion within the workplace	42%	11
To comply with health and safety standards	42%	11

Reasons for using microcredentials	% of total responses	Count
To comply with industry standards (e.g. to make use of specific machinery)	39%	10

NB: Respondents were given multiple-choice options.
Source: Survey of stakeholders representing employees (n=26).

Despite developments in the modularisation of vocational education and training and the opening up of formal qualifications systems, traditional qualification systems are often said, mainly by labour market representatives participating in the study, to be too slow to respond to the rapid changes taking place in the labour market. The development of the learning content of formal qualifications can be time-consuming and administratively burdensome, which hinders the ability to respond to fast-paced changes. The study signals that microcredentials may contribute to filling in the gaps and providing fast responses in areas in which formal qualifications cannot.

In Ireland, it is common for publicly funded providers to offer short courses and vendor credentials in areas in which full qualifications on the Irish Register of Qualifications do not meet the needs of the labour market. Respondents from the Danish trade union indicated that new areas are emerging such as climate accounting, data governance, data visualisation, digitisation, privacy and cyber security, which are still rarely and poorly covered by education and training programmes in the public sector.

In Denmark, adult vocational training (AMU) was created as part of Danish industrialisation, with the purpose of providing a quicker response to labour market needs, as learning programmes are developed through tripartite agreements with social partners, in which the latter decide on the learning outcomes and forms of assessment. It is up to the schools in collaboration with companies to decide whether learning comes on-the-job or in class. The trade committees, together with the ministry, implement and monitor formal and non-formal courses and their content, and conduct examinations. AMU seeks to respond in a more agile way than full qualifications to the training needs that emerge from private and public enterprises. For microcredentials to have wider relevance and promote societal transformations they would need to address the issue of speed.

Employer organisations stated that companies are concerned with the speed and agility of responses of education and training offers. As they experience constant changes in technology, processes, ways of creating value and increased volatility, they want upskilling and reskilling to be concise and to respond to genuine business needs. This is why an increasing number of companies, trade unions and employers' organisations are designing and delivering their own alternative paths to employment and professional development.

Employer representatives indicated that employers often want training in which content is developed using input from the labour market, and which is responsive to emerging needs in a more agile way than is currently the case. To illustrate this, the interview respondent from the European Consortium of Innovative Universities shared that there is growing interest from industry in working together with education and training providers to create programmes and new learning solutions that meet their business needs in terms of knowledge, skills and competences. This kind of engagement from labour market stakeholders is particularly high within the IT sector, with companies such as Google, IBM, Microsoft and Amazon entering the education and training ecosystem. Cases also exist of technology companies building relationships directly with employers and governments for the provision of training without the involvement of the traditional education and training sector (Box 25).

Box 25. **Amazon Web Services (AWS) re/Start initiative**

The Amazon Web Services (AWS) re/Start initiative provides 12-week, full-time courses leading to certifications in cloud computing to unemployed and underrepresented populations. 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 stakeholder organisations and non-profit agencies, such as youth associations and skills development organisations.

Source: Amazon.

The study also found some indications that adults who want to further develop and update their skills or quickly and flexibly reskill in order to make a career change have few opportunities to engage in shorter learning activities. This is partly due to the fact that higher and vocational education mainly focus on providing full qualifications to people entering the labour market. Many adults need on-demand training, regardless if it is certified or not, accessible to them in spite of their other commitments. Alternative credentials such as microcredentials were found to provide flexible, market-relevant and short learning experiences to professionals gradually becoming important to this target group. As indicated by the Estonian qualifications authority, employers demand shorter education programmes given that employees learn while working and do not want to leave their jobs for a year or two to complete a qualification. They need more flexible and targeted options to acquire competences that are directly connected to their day-to-day tasks. Rather than sending off employees to take outside courses, companies are increasingly

asking for hands-on learning in which training and upskilling are integrated into work.

Microcredentials can also perform an important function in licensing. In Finland, the Ministry of Education categorises microcredentials as a complementary term that helps in classification; they are viewed as a new way to understand existing structures rather than creating something new. For example, competence requirements (parts of a full VET degree) and different permits, licenses and qualifications (e.g. hygiene passport, first aid training) are possible examples of microcredentials already in use in the Finnish education system. They are very different from each other, but they are all ways to prove one's competence and qualification; an example is the Hygiene passport, which is designed to promote food safety by mandating food industry workers to prove their knowledge of basic food safety issues. Every employee working in a food establishment or working with unpackaged, easily spoiling food is required to have a hygiene passport. The Finnish Food Authority authorises different organisations to provide training and examinations and to issue the hygiene passports (Cedefop, 2021a).

Regulated professions directly or indirectly require certain qualifications and CPD in order to access and pursue them (e.g. medical professionals, teachers, lawyers, veterinarians, social service workers). In these cases, the use of microcredentials could be particularly useful when highly specific, standalone skills need to be acquired or updated. For example, in the case of health care workers, these could relate to cardiopulmonary resuscitation (CPR), measuring blood pressure or nasal swabbing (Peppler-Beechey and Weingarten, 2021). There are also some occupations in which membership of a professional organisation may be required while maintaining membership of such bodies may also require CPD and the acquisition of certain certificates or microcredentials. A number of occupations also exist in which a licence to practice is required, which may need to be renewed regularly, but which may only pertain to some tasks within the occupation, e.g. the need to possess a health and safety certificate.

5.3. Learners engaging with microcredentials independently of formal education and training

Key findings

- The main recipients of microcredentials offered by labour market actors are adults employed in the organisation's sector, who usually are professionals, technician and associate professionals, as well as plant and machine operators and assemblers.
- Groups of learners engaged with microcredentials are more diverse than those engaged with full qualifications, including employees, new hires, individual learners, customers of a company.

Learners engaging with microcredentials provided by organisations representing employees and employers are usually individuals employed in the organisation's own sector (Table 31 and Table 32).

Table 31. **Main recipients of microcredentials offered by organisations representing employees**

Groups of learners	% of total responses	Count
Individuals employed in the organisation's own sector	53%	8
The organisation's own employees	47%	7
Individuals employed in other sectors	20%	3
Other (members of the organisation and reskilling students who are seeking employment (usually quit their job while studying, or are on maternity leave).	13%	2
Unemployed individuals	7%	1

NB: Respondents were given multiple-choice options.
Source: Survey of stakeholders representing employees (n=15).

Table 32. **Main recipients of microcredentials offered by organisations representing employers**

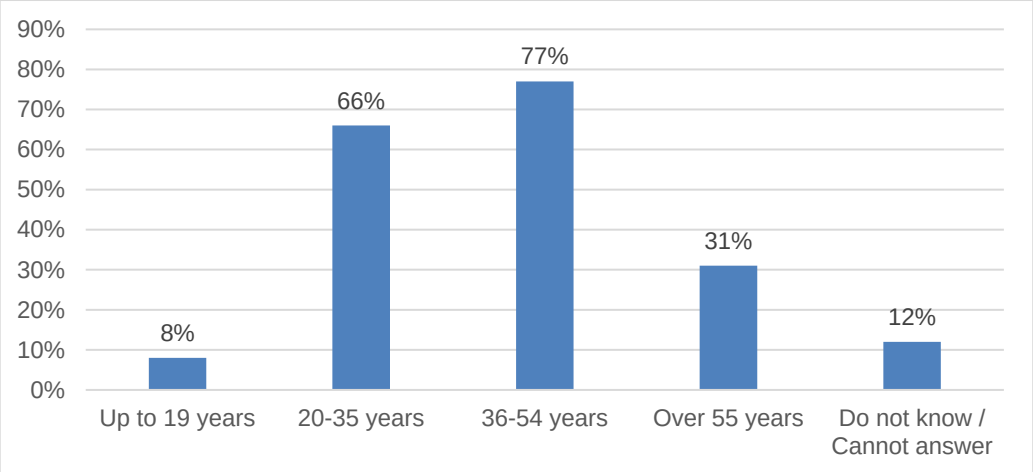
Groups of learners	% of total responses	Count
Individuals employed in the organisation's sector	75%	12
Individuals employed in other sectors	38%	6
The organisation's own employees	31%	5
Unemployed individuals	31%	2
Do not know/cannot answer	6%	1

Groups of learners	% of total responses	Count
Other (professionals represented by the confederation)	6%	1

NB: Respondents were given multiple-choice options.
Source: Survey of stakeholders representing employers (n=16).

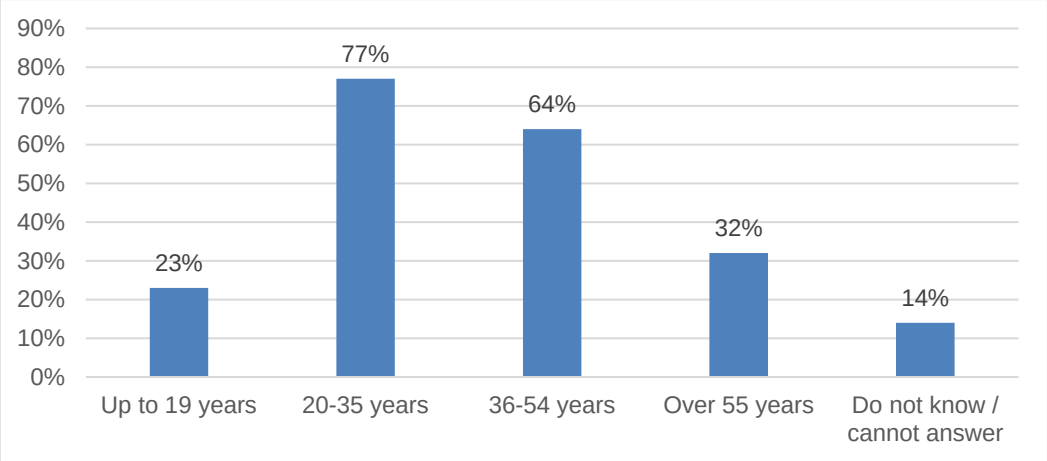
The study also showed that the key recipients are usually working-age adults. Most often learners are between 36 and 54 years old and those aged 20-35. These are the age groups in which a substantial number of individuals are either participating in the labour market or have been participating in the labour market at some point. The fact that the 36-54 age group predominates in relation to the microcredentials offered by organisations representing employees is interesting as it suggests that the microcredentials provided by labour market actors may play a particularly important role for those workers seeking additional knowledge, skills and competences in their working lives. These findings are similar to those gathered from VET providers, but their learners are more commonly younger adults at earlier stages in their working lives.

Figure 16. **Age groups of learners receiving microcredentials offered by organisations representing employees**



NB: Respondents were given multiple-choice options. Two responses for 'up to 19 years', 17 responses for '20-35 years', 20 responses for '36-54 years', eight responses for 'over 55 years', three responses for 'do not know/cannot answer'.
Source: Survey of stakeholders representing employees (n=26).

Figure 17. **Age groups of learners receiving microcredentials offered by organisations representing employers**



NB: Respondents were given multiple-choice options. Five responses for 'up to 19 years', 17 responses for '20-35 years', 14 responses for '36-54 years', seven responses for 'over 55 years' and three responses for 'do not know/cannot answer'.

Source: Survey of stakeholders representing employers (employers organisations) (n=22).

With regard to skills levels, microcredentials appear to be offered in a wide variety of contexts but mostly to professionals, technicians and associate professionals as well as to plant and machine operators and assemblers, as indicated by the survey respondents representing employers and employees (Table 33 and Table 34).

Table 33. **Recipients of microcredentials offered by organisations representing employees, by skill**

Groups of learners	% of total responses	Count
Technicians and associate professionals	54%	14
Professional	50%	13
Plant and machine operators and assemblers	39%	10
Managers	23%	6
Clerical support workers	19%	5
Skilled agricultural, forestry and fishery workers	19%	5
Craft and related trade workers	19%	5
Services and sales workers	15%	4
Elementary occupations	12%	3
Armed forces occupations	8%	2
Do not know/cannot answer	8%	2

NB: Respondents were given multiple-choice options.

Source: Survey of stakeholders representing employees (n=26).

Table 34. **Recipients of microcredentials offered by organisations representing employers, by skill**

Groups of learners	% of total responses	Count
Technicians and associate professionals	68%	15
Services and sales workers	55%	12
Professionals	41%	9
Craft and related trade workers	36%	8
Plant and machine operators and assemblers	36%	8
Clerical support workers	32%	7
Managers	27%	6
Elementary occupations	27%	6
Skilled agricultural, forestry and fishery workers	18%	4
Armed forces occupations	14%	3
Do not know/Cannot answer	14%	3

NB: Respondents were given multiple-choice options.
Source: Survey of stakeholders representing employers (n=22).

5.4. Labour market stakeholder microcredentials and task and competence certificates

When applying the European Commission's working definition, task and competence certificates could be considered as microcredentials. The study showed that there is an overall desire to make microcredentials more competence-based, narrowly focused, practical, short, flexible and widely recognisable. In this regard, competence certificates could be considered as one type of a microcredential, given upon demonstration of specific skill and for particular period of time.

As competence-based hiring is becoming popular, employees are actively using microcredentials to signal their competences. Like task and competence certificates, they enable users to showcase skills that they might not otherwise. For example, employees can translate the skills acquired during the implementation of a project by a digital badge, hence making sure their competence and professional development is recognised by their employer (Llanas and Abdel Maaboud, 2017). As microcredentials, such as digital badges, are getting more popular, they can become a powerful driver of professional mobility. Employers will be able to assess accurately the skills and competences of their prospective candidates and new hires. For example, IBM provides open badges in cloud or artificial intelligence,

which ensure high employability for its holders, without having to resort to a certification body or a higher education institution (Llanas and Abdel Maaboud, 2017).

The major differences between task and competence certificates and microcredentials are their focus and validity. Competence certificates tend to be very specific and are awarded to people who have successfully demonstrated their competence in a specific task. It means the holder can perform limited sets of tasks in a certain setting, such as handling machinery safely. Such certificates are often provided for workplace health and safety, occupational diving, construction jobs, mining operations or sailing. Similarly, competence certificates have a specified validity period and the holder has to demonstrate their competence and renew their certificate to be able to continue practising, for example CPR (cardio-pulmonary resuscitation) and driving licence. Microcredentials can cover broad sets of skills and competences, and often lack a specific validity period. Similarly, microcredentials can be obtained as proof of existing skills as well as for more transversal and soft skills such as leadership or stress management.

Another distinction between competence certificates and microcredentials is how they can be shared. For instance, digital badges are becoming very popular among labour market stakeholders as they can help communicate skills and competences of the holder. Badges consist of an image and metadata uniquely linked to the learner.

There is an increasing desire by policy-makers and labour market stakeholders to use microcredentials as a way to recognise and validate prior learning and encourage lifelong learning among adults. As mentioned by several interview respondents, the goal for microcredentials is to focus on the competences regardless of where and how they were obtained. The examples of microcredentials offered by labour market stakeholders, mentioned in this report, all focus on providing hands-on and applied learning and developing practical and relevant skills and competences. In many instances such learning occurs in a collaborative environment where employees are encouraged to learn and practice with their colleagues and apply their newly gained skills in their day-to-day tasks. Microcredentials are also used to validate and recognise prior learning and competences that people already possess. They might have obtained these competences either in informal or non-formal settings. There is also push toward accumulation and stacking of different competences and desire to make them recognised across education providers, sectors, occupations and geographies. The goal is to allow the individual learner to stack competences and have them documented as they go along their lifelong learning journey. However, for this to become a reality it is important that recognition and validation of a person’s

competences, regardless of how they have acquired them, become a key feature in a European approach to microcredentials.

Another goal for microcredentials, as mentioned by the Danish trade union, is to make continuing education and training competence-based and responsive, and cover new areas that are not covered by existing qualifications. If microcredentials are competence-based, it would also be possible to combine learning outcome elements at different levels. This would lead to multiple pathways that are not necessarily shaped by the understanding of progression as with existing qualifications framework. It would be a continuous learning system with less distinct boundaries between what is perceived as the ordinary system and what is the continuing education and training system (Danish trade union). Hence, microcredentials have the potential and momentum to become something bigger and broader than task and competence certificates, potentially replacing them in the future. Microcredentials could not only deliver the same standard of learning, credentialing and recognition as competence certificates, but also provide broader choice of competences and enjoy wider recognition.

CHAPTER 6.

Conclusions

6.1. Microcredentials in a changing education and training landscape

The landscape of education and training is changing, with the emergence and wider use of different types of credentials, including microcredentials. These changes are taking place in both the public and private spaces. The public space is more prominent in initial vocational education and training (IVET), while the private space plays a more prominent role in continuous vocational education and training (CVET). Having said this, a great deal of variation exists between different European countries and even between sectors, which are influenced by the overall characteristics of national VET systems. The public space largely consists of qualifications at different levels that are part of qualifications frameworks and serve the purpose of providing occupational entry and opportunities for upskilling and reskilling. The private space, meanwhile, is filled with credentials that are gained by participating in short learning activities with varying degrees of assessment and recognition within industries and occupations.

The emergence and wider use of different types of credentials, including microcredentials, has mainly been driven by:

(a) the fourth industrial revolution, which has brought with it structural economic and labour market changes. It has been characterised by the digitalisation of products and services, which has opened up new industrial sectors and professional disciplines, and broken down some professions into more specific sub-specialities, creating a greater need for continuous reskilling and upskilling;

(b) changes in the nature of teaching and learning, which have been decoupled from time and space, have created a significant increase in the ability to provide learners with new and different experiences, as well as faster and more tailored education and training;

(c) the globalisation of competences and labour markets, in which international vendor certificates are becoming industry standards, and sought-after certificates have become those that set the industry standards for competences.

6.2. The labour market potential of microcredentials

The drivers mentioned above have brought about very specific changes in education and training and the way in which microcredentials fit into it. Growth has accelerated in the number that exist in both public and private spaces, especially with regard to company training and upskilling and reskilling opportunities. There is permeability between the public and the private sector, with microcredentials seen as a possible solution for upskilling and reskilling and the recognition of prior learning that has taken place in different settings and throughout the lives of individuals.

Microcredentials are often seen as a way to upskill and reskill the labour force, to improve their employability, to meet needs and skills gaps within the economy and to promote lifelong learning among adults. They are expected to supplement existing formal education and training systems, which are sometimes regarded as too slow to respond to the rapid changes taking place in the labour market. Microcredentials can also potentially contribute to filling gaps and providing fast responses in areas where formal qualifications are limited or do not yet exist. They are seen as particularly beneficial for adults who want to develop and update their skills or to reskill quickly and flexibly to make a career change, and who seek to engage in shorter learning activities. These adults usually need either certified or uncertified on-demand training that is accessible to them despite their other commitments. This is where alternative credentials such as microcredentials might have a role to play, as they are expected to provide short, flexible and market-relevant learning experiences for professionals.

Microcredentials are also seen as potentially contributing to better and easier validation and recognition of prior learning and competences that individuals already possess. Individuals may have obtained these competences in either informal or non-formal settings, and require an easy, quick and less costly way to recognise and validate them. There is also a push toward the accumulation and stacking of different competences, and a desire for them to be recognised across a range of education and training providers, sectors, occupations and geographies. The goal is to allow individual learners to stack competences and have them documented as they progress along their lifelong learning journey.

6.3. Microcredentials: a new form of recognition, a better way to define and standardise

As the quantity of credentials that exist in education and training setting and discussions about these credentials increases, the interpretation of what

microcredentials are, and what they entail in different contexts, remains fluid and constantly changing. According to the data collected by this study, microcredentials have only recently gained Europe-wide attention in policy debates, with some EU Member States having only recently familiarised themselves with the term and launched or become involved in discussions.

Despite the lack of familiarity with the term among some stakeholders in labour market education, training and learning, a wide range of certified and uncertified short learning activities fit the definition proposed by the European Commission. Different types of certificates, including those relating to parts of qualifications or modules, are often considered to be equivalent to microcredentials in some VET systems. According to some stakeholders, the modularisation of VET programmes has similar aims: to strengthen the links between training and the world of work, and to allow the provision of education and training to respond better to the needs of individuals and employers. However, no consensus yet exists, and some stakeholders do not agree with this perspective. Instead, they argue that microcredentials should not refer to deconstructed qualifications but to something that is supplementary to the existing system. According to such stakeholders, the learning activities that lead to microcredentials should be independently designed and standalone.

Microcredentials can be considered as opening two ‘secret’ doors. One is related to the fact that they represent, in many cases, a new form of recognition of learning outcomes acquired both inside and also outside education institutions. While the term microcredential may be novel, the activities it encompasses may refer to long-standing practices. The second door opens to the increased need for more flexible learner-centred bodies providing education and training from a lifelong learning perspective.

Acronyms

AFDET	French Association for the Development of Technical Education (*Association Française pour le Développement de l'Enseignement Technique*)
BIBB	Federal Institute for Vocational Education and Training (*Bundesinstitut für Berufsbildung*)
BMBF	Federal Ministry of Education and Research (*Bundesministerium für Bildung und Forschung*)
CAS	Certificate of advanced studies
COVID-19	Coronavirus disease 2019
CPD	continuing professional development
CVET	continuous vocational education and training
CPR	cardiopulmonary resuscitation
ECTS	European credit accumulation and transfer system
EDCI	European digital credentials infrastructure
EQF	European qualifications framework
ESJS	European skills and jobs survey
ETUC	European Trade Union Confederation
ETUCE	European Trade Union Committee for Education
FET	further education and training
ICT	information and communications technology
ILO	International Labour Organization
ISCED	International standard classification of education
IVET	initial vocational education and training
IHK	Association of German Chambers of Industry and Commerce (*Industrie- und Handelskammer*)
MOOC	massive open online course
NQF	national qualifications framework
OECD	Organisation for Economic Cooperation and Development
OER	open educational resources
PIAAC	Programme for the international assessment of adult competencies
QAA	Quality Assurance Agency for Higher Education
QQI	Quality and Qualifications Ireland
SPHERE	Support and Promotion for Higher Education Reform Experts
SPOCs	small private online courses
UNESCO	United Nations Educational, Scientific and Cultural Organization
UK	United Kingdom
VET	vocational education and training

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Annex 1.

List of practices relating to microcredentials in labour-market-related education, training and learning

Title	Description of the practice
BRACO-BFC project	This project, implemented in France by the Reconnaître association, focuses on the promotion of open badges to allow the recognition and visibility of informal and non-formal learning. In this way, open badges are being used to some extent by local and regional authorities, for example, to recognise apprenticeships linked to a specific territory/region in France.
Capgemini Academy	Capgemini Academy is an e-learning platform for the company's clients, including both company employees and independent IT professionals. Each year, its trains and coaches over 12,000 IT professionals. The company's experts work with clients to develop e-learning solutions that meet their individual needs. Courses include multimedia resources, quizzes, possible application simulations, user-based scenarios, adaptive elements, and simple game elements. Most courses focus on topics related to IT, software development, cyber security, business analysis, digital transformation, personal skills and project management. Users can filter and access courses by specific areas of expertise, location and date. Capgemini Academy offers fully virtual, blended and in-person courses (in person locations are based in the Netherlands), which are available in English and Dutch.
Chips for game skills project	The Chips for game skills project aimed to define the criteria for future skills in the gaming industry, and to cross the boundaries of educational sectors. The original badge constellation was developed as a result of cooperation between games industry employers and educational institutions in Finland. The badges developed represented both professional and generic competences useful in growing industries such as game development, allowing positions to be filled that do not align with the curriculum of formal degree programmes.
Copernicus College	Copernicus College is a MOOC platform established by the Copernicus Centre for Interdisciplinary Studies of the Jagiellonian University. The platform provides free online courses developed and administered by Polish scientists. It currently offers 45 courses and has approximately 26,000 users.

Title	Description of the practice
Digital badges for continuous professional development of teachers in Ireland	The higher education sector in collaboration with the national Forum for the Enhancement of Teaching and Learning in Higher Education in Ireland developed open courses for professional development of teachers. The courses are aimed at all those who teach in Ireland's higher education and further education and training sector. Some courses offer digital badges as proof of national recognition. The platform offers various ways of how to organise and store collected badges. The learner can select a backpack, passport or wallet solution, then create collections to group individual badges into categories and share them with clients, schools or employers.
DISCOVET	The project Digitally signed credentials and open badges in VET and HE (DISCOVET, 2021) addresses the rapid growth of online course delivery via open-source learning environments such as Moodle and Ilias, and highlights the need to develop tools for the smooth facilitation of digital certification and credentialisation techniques, standards and systems. The first objective of the project is to explore the open standard Open Badge 2.0, to develop a meaningful data structure for vocational education and training and continuous professional development based on European Union vocational education and training standards and the Europass digital credential Infrastructure interoperability standards. It is anticipated that the project will provide a comprehensive grid of extra metadata to accompany a badge. The system would enable the better mapping and manageability of badges for VET and higher education providers and other stakeholders. Its second objective is to develop an open-source sample display platform (repository) on which educational VET and HE providers and learners can collect, issue, store and view badges.
Edubadges platform in the Netherlands	Edubadges is the digital certificates platform for the Dutch education community. Edubadges enable organisations to award students or workers with evidence of knowledge and skills they have acquired. An edubadge is an electronic certificate that provides detailed information on the content of the learning outcomes achieved. It is issued electronically within the secure and trusted SURF platform. Students collect edubadges in their edubadges backpack, and can share them with employers or other education institutions. The features that the platform offers for different users are as follows: (a) institutions can manage roles and privileges within the platform a well as creating, editing and issuing edubadges; (b) students and workers can access their edubadges backpack in which they keep all the edubadges received, as well as sharing them electronically with employers or other institutions; (c) external parties can verify and authenticate edubadges.

Title	Description of the practice
Ernst & Young (EY) in-house apprenticeship programme in the UK	Ernst & Young's in-house apprenticeship programme in the UK offers a microcredential-style skills development programme aimed at improving workplace performance. EY advertises its Business Academy programme as an alternative route to a university degree. It offers on-the-job experience along with business skills sessions, work shadowing and networking. Applicants can then decide to continue into an EY business apprenticeship programme. The Assurance apprenticeship programme, for example, is 4.5 years long and is level seven in Accountancy and Taxation, which is equivalent to a master degree. EY also provides professional qualifications with the Institute of Chartered Accountants in England and Wales (ICAEW) and Institute of Chartered Accountants of Scotland, two of the UK's most highly regarded chartered accountancy qualifications.
FUN MOOC Platform	The FUN MOOC platform operates on behalf of France Université Numérique to offer high-level online training courses, free of charge. These target a wide audience to support lifelong learning. The platform partners with around 140 higher education institutions in France and around the world, and offers a platform for them to disseminate knowledge to the greatest number of people.
Google Activate	Google Activate is a MOOC programme providing digital skills to young unemployed people in Spain. Its main partners include Google Spain, the Spanish Ministry of Industry (through its business school, EOI), Universidad Complutense de Madrid and the Interactive Advertising Bureau (IAB). Participants can receive a certificate, after passing 13 examinations, awarded by the EOI, Universidad Complutense de Madrid or the Interactive Advertising Bureau.
Google Career Certificates	Google Career Certificates are a selection of professional courses that prepare candidates for high-paying and high-growth jobs in fields such as project management, data analysis and UX design. These courses cost a fraction of a traditional university education and take only 6 months to complete. The programmes aim to equip participants with foundational skills and enable them to get a job without a university degree or prior experience. Courses are designed and taught by Google employees working in the respective fields. Upon completion of the programme, Google supports candidates in the job search process, and considers applications for their open vacancies by treating these new career certificates as the equivalent of a 4-year degree. Participants also have the option of sharing their information directly with top employers hiring for jobs in these fields.
GRADEO	GRADEO is an Erasmus+ project that brings together European academic platforms offering online courses. Courses offered through GRADEO provide a certificate validating the recognition of skills acquired, issued by the partnering institutions.

Title	Description of the practice
Innovation competition INVITE	The Federal Institute for Vocational Education and Training (BIBB) in Germany is attempting to embed further certified education offers from various providers into the national further education strategy. BIBB has announced the innovation competition INVITE to contribute to the optimisation of an innovative, digital and secure educational space for professional further education.
Introduction of microcredentials in New Zealand's education and training system	The New Zealand Qualifications Authority (NZQA) has introduced a microcredential system into the New Zealand qualifications framework (NZQF), as part of New Zealand's regulated education and training system. According to the NZQA, a microcredential certifies the achievement of a coherent set of skills and knowledge; and is specified by a statement of purpose, learning outcomes, and strong evidence of need by industry, employers, iwi ([37]) and/or the community. They are smaller than a qualification and focus on skill development opportunities not currently catered for in the regulated tertiary education system. Microcredentials usually have a very practical focus and largely concern the vocational education and training sector.
K-Academy	K-Academy operates on behalf of the Finnish trading conglomerate, KESKO. It is a pioneer of working life in the application of digital open badges for the development of staff competences, with its first digital badge being awarded in December 2005.
Kiron Open Higher Education (gGmbH)	Kiron Open Higher Education (gGmbH) is a social start-up founded in Berlin in 2015. Kiron offers custom-made online study programmes using MOOCs from renowned education providers and open educational resources (OERs). It also provides skills programmes to help learners prepare for university and the job market. Through Kiron Campus, its online learning platform, Kiron provides free education to refugees worldwide and underserved communities in the Middle East. Kiron students who have successfully completed their courses can receive certificates that can translate into college credits with Kiron's university campus partners. There are several study tracks to choose from, including business and economics, engineering, computer science and social sciences. In addition to taking online courses, learners can also benefit from language, career and psychological services. Currently, Kiron collaborates with 145 partners worldwide to provide high-quality educational opportunities to 7,000+ students from more than 45 countries. Its courses are mainly offered in English.
Learning Online – Professional Development for Vocational teachers	Two Finnish schools of professional teacher education joined forces with VET provider Omnia to create a competence-based professional development programme (PDP) that would support teachers in building working-life ICT skills and knowledge. It is a gamified, open badge-based MOOC.

([37]) Maori community.

Title	Description of the practice
Magenta MOOC	Magenta MOOC is an online training programme for employees at Deutsche Telekom. It combines learning and practical experience, while also strengthening cooperation across functional areas and countries. Although courses are online, participants also directly interact with their colleagues to work on business challenges and come back to the platform to share their experiences. So far, Magenta MOOC has provided three editions of online courses, focusing on entrepreneurship (2014), digitisation (2016) and design thinking (2018). Its digital learning community consists of more than 5 300 people from 32 countries. One of its courses was delivered in partnership with Leuphana Digital School, while participants in another course could receive a certificate from the ESCP Europe Business School after successfully completing the course assignments.
Microcredentials at IBM	IBM offers a range of open badges to the public (and a few restricted to employees only) in knowledge, skill and proficiency. It promotes its programme as a way for professionals to display and share their accomplishments. IBM has a partnership with North-Eastern University whereby certain IBM badges can be used towards professional master degree programmes. In addition, IBM relies on ‘new collar’ skills development at community colleges, boot camps, apprenticeships and other internal training programmes for about 15% of its ‘new hires’.
Microcredentials at Google	Google provides an online certificate in IT support jobs intended for jobseekers at entry-level and middle-skill jobs, available through Coursera. It can be completed in 8 months, but students can move at their own speed. As of June 2018, 40 000 learners had enrolled and 1 200 had completed. Traditional providers such as Duke University are preparing to offer credits for the course. Google has brought together a consortium of more than 20 employers (including Bank of America, Walmart, Sprint, GE Digital and PNC Bank) who are interested in hiring those who complete its certificate.
Micro-skills programmes at RAFMENNT Electrical VET Centre	RAFMENNT is a vocational, educational and training (VET) centre for electricians and electronic technicians in all industries and sectors and technicians in the fields of telecommunication, information technology, audiovisual, broadcasting and the creative industries (CI) in Iceland. It offers courses for skilled electricians and electronic technicians who have completed their education, either trade education and/or trade master education, as well as for telecom, AV, IT, broadcast and CI technicians. RAFMENNT is also currently developing a health and safety micro-skills programme for the creative industries.

Title	Description of the practice
Multi-campus microcredentials project led by IUA, Ireland	The idea of visually representing microcredentials by using digital solutions is also being addressed as one of the key deliverables of a multi-campus microcredentials project led by the Irish Universities Association (IUA). Aside from the development of a National Framework for microcredentials and the creation of a dynamic and sustainable model for enterprise engagement with microcredentials, the project aims to design and develop a digital discovery platform for accredited microcredentials. According to representatives of the IUA, the portal will support learner access to microcredentials pathways. Nonetheless, the project acknowledges the ground-breaking work of the European Commission in developing EDCI, and will aim to optimise further the interoperability of the EDCI with existing university and national systems in Ireland. The development of a digital infrastructure will encompass many interrelated aspects such as the initial interaction, application to a higher education institution, undertaking a microcredential, and awarding and storing it in a digital rucksack.
NAVOICA	NAVOICA is a national free online learning platform in Poland on which courses are provided by various Polish academic institutions and universities. Currently, it offers 82 courses, mostly in areas such as information technologies and social sciences.
NEXT	NEXT is an internal digital learning hub at Capgemini. It supports the upskilling needs of the company's global workforce. The platform continuously gathers and updates online courses from diverse platforms into one place. Employees can build their own personal development paths and take courses in topics relating to business, technology, data science and personal development, taught by the world's top university and industry educators. To deliver these courses, Capgemini partners with global brands such as Google, Harvard Spark, Pluralsight, ServiceNow, MuleSoft, Adobe, Azure, TED and Coursera. Licences are also provided for other courses based on the company's business needs. Employees can stack courses to develop their proficiency in a specific topic over time, and thus receive an electronic certificate.

Title	Description of the practice
Open Badges for Adult Education	The EU-funded project Open badges for adult education involves five organisations from five different Member States. The project aims to test and promote the use of Mozilla open badges among adult education organisations, educators and learners at ground level. Mozilla open badges is a free software and open technological standard that any organisation can use to create, issue and verify digital badges. The partners in the project all specialise in adult education and have experience of collaborative work at European level. Not only do they anticipate experimenting with the deployment of badges for their learners, but they aim to spread the concept in their local and regional environments as well. With regard to the latter, the project website includes guides for training centres, educators and learners explaining what open badges are, and how they can be created and used in a learning path. Some 100 badges have been jointly created and are available in the five languages of the partnership. The project has focused on issuing badges that promote key competences, skills, attitudes or qualities that can be considered transversal competences. These badges were developed and used to highlight elements of competences, attitudes and behaviours that are not recognised by existing qualifications.
OpenClassrooms	OpenClassrooms is an online education platform based in France that offers education-to-employment programmes and career coaching services to students worldwide. Learners can accumulate certificates towards a degree in IT, as well as business topics that are recognised by the French State. While the platform offers a paid premium membership for EUR 20 a month for most users, courses are free of charge to jobseekers in France. The platform offers download access to all courses, exercises and paths, certificates of achievement, self-paced courses, videos and e-books (OpenClassrooms, 2021). Courses are conducted entirely online, through a mix of video resources, online reading, real-life projects and individual mentoring sessions. It also offers Career Paths, which include weekly, one-on-one mentoring sessions with dedicated professionals from relevant fields, who support programme participants throughout their studies. At the end of the programme, career coaching is provided to help students find a job in their target field. The platform even offers a money-back guarantee in the event that students fail to land a job within 6 months of graduation.

Title	Description of the practice
openSAP	openSAP ([38]) is SAP's free learning platform for anyone interested in learning SAP's technology and in thriving within the digital economy. Courses range from those directly related to SAP software to ones covering business processes, the circular economy, digital technology, project management and others. Courses are gamified and involve a discussion forum in which learners can interact with other students, SAP coaches, experts and instructors. Learners can choose from current, upcoming and self-paced courses and complete them during a specified period of time. Upon successfully earning the required points through course assignments, participants can receive a course certificate called a record of achievement, as well as a digital badge that they can share across their social networks.
Orange Campus	Orange Campus is an online school offering courses to both employees and external audiences on topics such as data/AI, cybersecurity, management and soft skills. Courses are built along the company's business line expertise and digital platforms, and designed with major partners. Participants can take both basic and advanced modules and gain specialised expertise with certification or a diploma at the end.
Skills forecasting and upskilling partnership between LinkedIn and the Greater Manchester Combined Authority (GMCA)	In the UK, LinkedIn and the Greater Manchester Combined Authority (GMCA) have collaborated to analyse local vacancies and more than 600 000 local LinkedIn users' skills and employment data, to create a detailed snapshot of skills and employment in the Greater Manchester region. Based on this information, training modules will be developed and delivered by GMCA. This collaboration, the first of its kind in Europe, aims to address concerns that education is insufficiently targeted at actual skills gaps in the workforce.
Short vocational training programmes mainly for low-skilled and skilled workers on the labour market in Denmark	The Danish government places a specific focus on adult vocation training programmes. These short vocational training programmes seek to provide skills and competences directed towards specific sectors and job functions. It is a flexible system which aims to meet current changes and needs for new skills and competences in the labour market. Programmes are available to everyone who is a resident or holds a job in Denmark; however, they mainly target unskilled and skilled workers in employment. In general, there are three main types of programme, directed at: (a) specific job/sector related competences, e.g. crafts, technical insight and knowledge of materials; (b) general competences, e.g. ICT, job-relevant languages; (c) personal competences, e.g. social communication, organisation and management. In addition, there are special programmes for immigrants and refugees and recognition of prior learning according to the individual competence assessment programmes (IKV).

([38]) openSAP is a free and expert-led online learning platform for anyone interested in learning SAP technology.

Title	Description of the practice
Teacher's open badges in Finland	This project considered the opportunities offered by digital credentialling and designed courses for research, development and innovation (RDI) competence development in teacher education programmes. Student teachers were able to attach earned badges to their ePortfolios and share them via various social media channels. The project revealed that the digital badges earned were useful, particularly for the purposes of job applications.

Microcredentials for labour market education and training

First look at mapping microcredentials in European labour-market-related education, training and learning: take-up, characteristics and functions

This study examines the role of microcredentials in supporting learning for employment. The study collected information through an online survey among mostly European VET providers, national authorities, employee and employer organisations, in-depth country case studies and interviews, as well as Cedefop's ReferNet network.
While the topic has gained in importance in the context of higher education, focusing on vocational education and training does justice to the complexity of microcredentials in education, training and learning for the European labour market. Results show that microcredentials have only recently become prominent in Europe-wide policy-level debates, despite the existence for many decades of short courses and credentials that support labour-market-related education and training. Although there is uncertainty linked to the naming and function of microcredentials, clear benefits with regards to their flexibility and responsiveness to labour market needs can be observed.

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