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Educational Planning

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Short courses, micro-credentials, and flexible learning pathways: A blueprint for policy development and action

Policy paper

FLEXIBLE LEARNING PATHWAYS IN HIGHER EDUCATION



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Abstract

Several concurrent trends are increasing the likelihood that short courses, micro-credentials, and flexible learning pathways will become a regular and even dominant feature of education and training globally. This policy paper reflects on these trends with special reference to the post-secondary education sector, and explores ways to organize short courses and micro-credentials as effective tools for offering up-to-date, quality learning to much larger segments of the population, creating flexible learning pathways, fostering learner autonomy, and formally acknowledging competencies.

The paper discusses existing definitions and proposes a universal working definition for micro-credentials developed by UNESCO. It also describes 10 challenges that potentially threaten the successful roll-out of micro-credentials. Challenges range from concerns – some justified, others less so – about the quality of pedagogy to doubts about level, credit points, progression, coherence, assessment, certification, and labour market value.

The paper assesses each challenge and identifies actions that could contribute to

the successful roll-out of short courses and micro-credentials. These include a functioning national qualifications framework, transparent recognition procedures, internal and external quality assurance, reliable assessment, facilities for digital storage, funding for learners and providers, and stakeholder engagement. Lastly, success also requires the development of easily accessible digital registers of learners' achievements, micro-credential qualifications, short courses, providers, assessors, awarders, quality assurance agencies, credential evaluators, employers, and job and promotion opportunities.

The paper draws on country experiences, studies, and projects from all world regions, and highlights good practices. It concludes with seven recommendations targeted at public policy-makers to foster coordinated action, including further research to better understand short-course provision at country level and obstacles to the development of micro-credentials, as well as their added value for individual learners, the economy, and society at large.

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Abbreviations

ACTRC	Assessment Curriculum and Technology Research Centre
ALE	adult learning and education
ALS	Alternative Learning System
AQF	Australian Qualifications Framework
CHEA	Council for Higher Education Accreditation
CIQG	Council for Higher Education Accreditation International Quality Group
CMF	Common Micro-Credential Framework
EADTU	European Association of Distance Teaching Universities
ECTS	European Credit Transfer and Accumulation System
EMC	European MOOC Consortium
ENQA	European Association for Quality Assurance in Higher Education
EQF	European Qualifications Framework for lifelong learning
ETF	European Training Foundation
GRALE	Global Report on Adult Learning and Education
HEI	Higher Education Institution
HEP	Higher Education Providers
IIEP-UNESCO	UNESCO International Institute of Educational Planning
ITU	International Telecommunication Union
KMUTT	King Mongkut's University of Technology Thonburi
MOOC	Massive Open Online Course
NQF	National Qualifications Framework
NZQA	New Zealand Qualifications Authority
OECD	Organisation for Economic Co-operation and Development
RNCP	National Directory of Professional Certification
SWAYAM	Study Web of Active Learning by Young and Aspiring Minds
TEO	tertiary education organization
TVET	technical and vocational education and training
UCJ	University Council of Jamaica
UCT	University of Cape Town
UIL	UNESCO Institute for Lifelong Learning
UMAP	University Mobility in Asia and the Pacific
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIMINUTO	Corporación Universitaria Minuto de Dios
USM	Universiti Sains Malaysia

Introduction

The proliferation of *micro-credentials* is a major new development in many countries. They are most simply defined as a small volume of certified competencies acquired through life experience, work, or study. Micro-credentials can be awarded to learners after they have taken a short course or through recognition of prior learning.

Micro-credentials are an example of *flexible learning pathways*, advocated in the Education 2030 Agenda of the United Nations. The 2030 Agenda defines flexible learning pathways as ‘entry points and re-entry points at all ages and all educational levels, strengthening links between formal and non-formal structures, and recognition, validation and accreditation of the knowledge, skills and competencies acquired through non-formal and informal education’ (UNESCO, 2015: 33).

Flexible learning pathways aim to offer increased learner choice and eliminate barriers to access and progression in education systems. They are increasingly seen as essential for adapting formal education systems to the needs of more diverse learner communities, including first-generation learners, education returnees, and learners from disadvantaged groups (Higher Education Academy, 2015).

Micro-credentials also help to respond to rapidly changing skill needs in the labour market. They offer one solution to addressing both human resource development and equity concerns. Major micro-credential initiatives have been launched in OECD (Organisation for Economic Co-operation and Development) countries, including at

European Union (EU) level. In countries of the Global South, initiatives are mostly emerging at provider level, notably but not exclusively through post-secondary institutions.

The UNESCO Global Convention on the Recognition of Qualifications Concerning Higher Education, adopted in 2019, re-emphasizes the need to recognize qualifications acquired through non-traditional learning modes. The recent UNESCO Futures of Education report restated that ‘individuals have a basic right to have their learning recognized and validated, even in non-formal and informal educational settings’ (UNESCO, 2021).

An operational system of flexible learning pathways with certified micro-credentials would foster recognition of non-formal and informal learning and help widen access to formal education systems, if that is sought by the learner. The success of flexible learning pathways depends, crucially, on the capacity of education and training systems to enable recognition of competencies resulting from a variety of learning experiences.

Many countries still lack the necessary policy and regulatory frameworks for making decisions about recognition that would convert small volumes of competencies into certified micro-credentials. This paper supports the introduction and further development of such frameworks and their surrounding multi-actor ecosystems. It aims to bring some clarity to the debate on the definition of micro-credentials, and to provide policy-makers, providers, and other actors with a blueprint for policy development and action to support their recognition.

With these purposes in mind, the paper will discuss current concerns — some justified, others less so — about micro-credentials.

Part I addresses trends in education, technology, and labour markets that call for the development of micro-credentials, as well as the question of their definition, concerns, and

the role of a multi-actor ecosystem in their development. *Part II*, on global developments, presents encouraging examples of the development of micro-credentials from around the world. The conclusion makes seven recommendations to public authorities in UNESCO Member States.

Part I

Blueprint for the development of short courses, micro-credentials, and flexible learning pathways

Part I discusses the trends that support the development of short courses, micro-credentials, and flexible learning pathways: several concurrent trends are increasing the likelihood that these will become a regular, or even dominant, feature of education and training globally. It discusses existing definitions, and proposes a working definition of micro-credentials put forward by UNESCO.

It then outlines 10 challenges (corresponding to popular beliefs) that may threaten the successful roll-out of micro-credentials. It assesses each challenge and identifies actions that may contribute to the successful roll-out of short courses and micro-credentials. It concludes by identifying the actors and roles which form part of the ecosystem needed to support the development of micro-credentials.

1. Why the time is ripe for change

1.1. Persisting inequalities in access to adult education

Education systems globally have made great strides in educational attainment over the past decades. In OECD countries, 39 per cent of adults reached tertiary attainment in 2020 (OECD, 2021a). But important inequalities remain in access to higher learning by disadvantaged groups: according to UNESCO data, in 2017, across 76 countries, 20 per cent of the richest 25-to-29-year-olds had completed at least four years of higher education, compared with less than 1 per cent of the poorest.

Progress in participation in adult learning and education (ALE) is also generally insufficient and uneven. Data from the GRALE-4 monitoring survey show persistent and deep inequalities.¹ Key target groups, such as adults with disabilities, older adults, minority groups, adults living in conflict-affected countries, and females, are not being reached sufficiently. Out of 103 countries with actual data, 25 per cent of countries reported participation in ALE at 5 to 10 per cent; 20 per cent at 20 to 50 per cent; and 15 per cent at more than 50 per cent. Almost a third (29 per cent) reported participation rates below 5 per cent (UNESCO Institute for Lifelong Learning, 2019: 76).

It is clear that the offer and demand for lifelong learning needs to be better managed, as the need for good education steadily increases, technological developments are making labour markets more volatile, and new occupations emerge while others disappear. Skills gaps are reported at all levels, while online working and migration are

changing the definition and composition of the workforce.

The classic degree monopoly held by traditional education providers hinders the uptake of new types of learning that would be closer to practice and to learners' capacities and interests. The tide may be turning during this decade, however, in favour of 'advanced education for all'. We can already see short courses of all sorts springing up, often bypassing traditional education providers. The COVID-19 pandemic may have acted as an accelerator, given the growing focus on continuous re-skilling and up-skilling that traditional education provision cannot meet.

1.2. Technological progress offers access to new forms of learning

Rapid progress in information and communication technology is impacting the offer and demand for lifelong learning. New *interactive pedagogies* based on e-learning have proven their effectiveness. There are continuous advances in digital technologies, social media, and mobile devices, giving learners better access and control over knowledge and educational content. More recently, artificial intelligence for teaching and learning, virtual augmented reality, simulations, and serious games have further widened the opportunities arising from technology-enabled learning.

The availability of digital storage techniques, including the use of blockchain for certification purposes, is a game-changer. Several countries have developed or are developing digital storage spaces, such as credit banks in the Republic of Korea,

¹ To prepare the Global Report on Adult Learning and Education, the UNESCO Institute for Lifelong Learning (UIL) conducts a monitoring survey at roughly three-year intervals. The above data are drawn from the GRALE-4 survey.

1. Why the time is ripe for change

China, and Singapore, or are planning to develop them, as in India. The Groningen Declaration Network connects large public and private digital learner data depositories, educational institutions, government bodies, third-party academic data processors, and innovative companies, all seeking to facilitate educational and professional mobility.² All these factors are lowering the threshold to access and document learning. This is a positive development that should also benefit the many learners from families who are currently less engaged in education, notably in the Global South.

1.3. The digital divide as a major obstacle

Online learning is highly dependent on the availability of IT equipment, connectivity, and learners' mastery of digital tools. Short courses can be delivered in person on campus, and micro-credentials can also be issued as hard-copy certificates or digital badges. However, courses and credentials will increasingly be delivered online,

requiring IT infrastructure and internet access. These are unequally spread across and within countries. This digital divide affects citizens' chances to access and acquire education and training. This is one factor that slows down the spread of short courses and micro-credentials, increasing inequality in access to learning opportunities, particularly for adults.

Digital action plans are rolled out by UNESCO Member States in all world regions, but access will remain uneven for years to come. One way to mitigate the impact of the digital divide is to *maintain offline provision* in underserved regions and to offer guidance on how to operate with limited internet connectivity.

Providers of digital online courses have reacted by offering settings which can be adjusted according to local technical conditions. The two examples in *Box 2* from Coursera and Kiron Digital Learning Solutions show how providers can offer

BOX 1

The digital divide in 2021

A trend analysis by the International Telecommunication Union (ITU) reveals that an estimated 63 per cent of the world's population are using the internet, but close to 30 per cent of Africa's rural population still lack mobile broadband coverage. Even if the great majority of the world's population can access the internet through mobiles, less than two-thirds actually do so. The statistics reveal a global connectivity divide: 96 per cent of the 2.9 billion still offline live in the developing world. There are major in-country disparities as well: worldwide, the share of internet users in urban areas is twice as high as in rural areas. There is also a generational gap – 71 per cent of the world's population aged 15–24 are using the internet, compared with 57 per cent of the other age groups.

Source: ITU, 2021.

1. Why the time is ripe for change

Coursera and Kiron Digital Learning Solutions

BOX 2

Coursera is a global online learning platform. All videos on Coursera have subtitles in many languages. A learner can download the text of the video and read it instead of loading the video. The text content of a lesson can then be copied into a text document to read offline. In addition, the Coursera app has an offline mode. When on a wi-fi or data network, the material of any course can be downloaded in advance.

Kiron is a non-profit organization which develops learning solutions. The Kiron app for Android has been designed to be particularly light to download and use, which means that it uses fewer data than other educational apps—about 1.23MBs, 12MBs less than comparable apps. Each Kiron video offers different levels of quality, and all YouTube videos have subtitles in many languages. The text of the video can also be downloaded and read instead of loading and watching the video. Pages are cached or stored locally for fast navigation. Kiron recommends students in the same course to build a study group in which the content of the course can be shared, so that only one person in the group needs to download the content for each unit. The app also features some course content that can be downloaded to audio, turning the video into a podcast.

Sources: Coursera Support,³ Kiron.⁴

online courses to learners with limited internet connection. Ultimately, this should be a transitional solution while aiming at closing the digital divide.

1.4. Progress in the short-course offer

Lifelong learning and continuous skill development, and recognition and validation of skills, are gaining new momentum.⁵ As higher education systems rapidly expand and diversify, micro-credentials are at the centre of the international policy discussion. Flexible learning pathways are seen as ways to adapt to learners' needs by offering choice and eliminating barriers to access and progression. They address the increased

diversity among students, as more first-generation learners, higher education returnees, and disadvantaged students join higher education. Short courses and micro-credentials play a crucial role in implementing flexible education and training.

Many countries already offer an overwhelming number of short courses in their formal, non-formal, and informal education and training systems. Many of those short courses are 'unclaimed treasures' waiting to be discovered and 'unlocked' (i.e. properly assessed and certified) as the micro-credentials that they really are. Increasingly, short courses and micro-credentials are offered online as MOOCs (Massive Open

³ www.coursera.support

⁴ support.kiron.ngo

⁵ For example, see the Bangkok Statement by ministers of education in the Asia-Pacific region: diverse stakeholders stressed the importance of 'establishing flexible learning pathways with multiple re-entry points at all ages and educational levels, and the recognition and accreditation and validation of alternative education, in particular for out-of-school children, adolescents, and adults, recognizing qualifications earned through online and blended learning through micro-credentials and providing opportunities for re-skilling and up-skilling in a lifelong learning perspective' (UNESCO, 2022b).

1. Why the time is ripe for change

Online Courses). Globally, it is estimated that more than 100 million learners follow MOOCs. By 2018, over 900 universities around the world had announced or launched a total of 11,400 MOOCs (Shah, 2018). A global study focusing on MOOC users in Colombia, the Philippines, and South Africa found that 80 per cent of those were from low- and middle-income populations, and that close to 50 per cent received certification (Garrido et al., 2016).

However, according to the OECD, a central challenge is the lack of consensus on how micro-credentials should be understood and defined, and how the concept of a

micro-credential integrates with existing offerings of small-scale, targeted, certified learning programmes and other existing qualifications within education systems (OECD, 2021b). This lack of consensus limits the evaluation and portability of micro-credentials beyond individual institutions, collaborative networks, and (at best) national systems. This poses a major challenge to their coherent implementation across higher education systems and beyond (Orr, Pupinis, and Kirdulytė, 2020; Lantero, Finocchietti, and Petrucci, 2021). Addressing these challenges to articulation will require concerted and coordinated efforts from providers and governments (OECD, 2021c).

2. Moving towards a universal working definition of micro-credentials

Dozens of definitions of micro-credentials exist around the globe. These often contain references to what is considered desirable in a sector (e.g. vocational or higher education), a legal context (e.g. the UNESCO Global Convention on the Recognition of Qualifications Concerning Higher Education), or within a pedagogical paradigm (e.g. competencies should result primarily from course work).

Micro-credentials can be acquired before, during, after, as part of, in addition to, or instead of regular programmes of study. They can be officially endorsed by schools and universities, tolerated as an alternative education pathway, or even discredited as a threat to traditional education. They are relevant to learners at all stages of life. Micro-credentials can be introduced at any appropriate level of national and sectoral qualifications frameworks. They can play a role in general, primary, secondary, vocational, tertiary, higher, continuing, professional, and further education.

The absence of a consensus on a definition of a micro-credential poses a challenge for *quality assurance*. Micro-credentials may not be trusted because there is a general lack of transparency around standards. UNESCO (2022a) has set a clear and sector-neutral working definition, which is as follows.

A micro-credential:

- is a record of focused learning achievement, verifying what the learner knows, understands, or can do;
- includes assessment based on clearly defined standards and awarded by a trusted provider;
- has stand-alone value and may also contribute to or complement other micro-credentials or macro-credentials,

including through recognition of prior learning;

- meets the standards required by relevant quality assurance. (UNESCO, 2022a: 6)

The UNESCO definition specifies that the achieved learning is on a specific topic, a standardized assessment is conducted by a credible certifying institution, and the learner's achievement is usable on its own, although the stacking of multiple micro-credentials is also possible. This definition, which was prepared by a group of 50 experts from around the world, can claim to be comprehensive and globally diverse.

We examined other working definitions of micro-credentials in use by international organizations, country regulatory bodies, or micro-credential providers. *Box 3* presents some examples.

The definitions cited here combine learning outcomes, knowledge, skills, or competencies with assessment and certification. Some stress the organized nature of the learning (e.g. via a course), while other definitions are more neutral as regards the source of the skills gained, which may not necessarily involve course work. Accompanying texts explain that micro-credentials can be acquired as stand-alone short courses and certificates or combined into (stackable) degree programmes and awards.

Note that 'micro-credential' is often used to mean both qualification and short course, similar to the double meanings of 'bachelor' and 'master'. In this paper we try to avoid this ambiguity and clearly distinguish the short course from the micro-credential qualification, which may also be obtained after an assessment of prior learning if a learner is not required to take a specific course.

2. Moving towards a universal working definition of micro-credentials

BOX 3

Micro-credentials: some working definitions

European Commission

'Micro-credential' means the record of the learning outcomes that a learner has acquired following a small volume of learning. These learning outcomes have been assessed against transparent and clearly defined standards (European Commission, 2021).

OECD

Micro-credentials are an organized learning activity with an associated credential; the credential recognizes a skill or competency that has been acquired through an organized learning process and validated through an assessment (OECD, 2021c).

eCampusOntario

A micro-credential is a certification of assessed learning associated with a specific and relevant skill or competency. Micro-credentials enable rapid retraining and augment traditional education through pathways into regular post-secondary programming.⁶

Malaysian Qualification Agency

A micro-credential is defined as digital certification of assessed knowledge, skills, and competencies in a specific area or field, which can be a component of an accredited programme or stand-alone course supporting the professional, technical, academic, and personal development of the learner (Malaysian Qualification Agency, 2020).

University Council of Jamaica

A micro-credential is a certified small volume of learning which attests to knowledge, skills, and competencies (autonomy, responsibility, and life skills) in a specific area or field. It may be acquired through assessed life and work experience or a dedicated short course. Micro-credentials support the professional and personal development of the learners. They may also be combined into larger qualifications (University Council of Jamaica, n.d.).

New Zealand Qualifications Authority

A micro-credential certifies 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,⁷ and/or the community (New Zealand Qualifications Authority, n.d.).

⁶ <https://micro.ecampusontario.ca>

⁷ The largest social unit in pre-European Māori society.

2. Moving towards a universal working definition of micro-credentials

2.1. Standard elements

A few standard elements must be added to make the definition fully operational: name of the holder, name of the awarder, level in a national, sectoral, or international qualifications framework (preferably all three), learning outcomes, assessment method, assessment results, and quality assurance. These standard elements are promoted in the Member States and at regional (European Commission [EC]) level, as exemplified in *Part II*. A short explanation of each of the standard elements is provided below.

The *holder* is the person who has acquired the competency laid down in the micro-credential certificate. This person owns the certificate and may share it, for example to secure further training or employment.

Awarding bodies of micro-credentials qualifications (certificates, badges) may be the providers of the short courses, or may be simply assessors or other entities as decided by individual countries.

Short courses and resulting micro-credentials should be referenced (by the awarder) or registered (by the competent authority) in terms of the appropriate *levels* of the national qualifications framework.⁸ Level descriptors help assess student achievement and inform quality assurance of course provision.

Learning outcomes or competencies are what a person knows, understands, and can do after a learning experience. Learning outcomes are described by level in national qualifications frameworks.

Credit points express the notional workload needed by an average learner to achieve the intended learning outcomes of a short course leading to a micro-credential.

Assessment methods are various kinds of summative or formative testing against known standards (progress tests or final tests, written, oral, or online). *Assessment results* indicate whether the individual has passed the test successfully (and with what grade, when a grading scale is used).

The *quality assurance* system assures and improves the quality of a specific course to obtain the micro-credential. Most course providers have both internal and external quality assurance systems. Accreditation and labelling can be part of a quality assurance process.

⁸ Sectoral qualifications frameworks (e.g. for nurses or engineers) and international qualifications frameworks (e.g. the European Qualifications Framework for lifelong learning [EQF]) could be added to facilitate recognition decisions.

3. Challenges in addressing current concerns

3.1. Resetting quality assurance systems to support micro-credentials

While short courses and micro-credentials are prominent in policy discussion, many concerns about them are raised; some are justified while others can be easily countered. In this section, we confront these concerns with counter-arguments and identify possible actions to overcome the challenges they pose.

Challenge 1: The perceived low quality of short courses and micro-credentials

Concern 1: Short courses and the resulting micro-credentials are of lower quality as they are not part of degree education, which is more regulated.

Counter-argument 1: The quality of short courses is likely to be relatively high, as they are in the public domain and generally more effort goes into their preparation.

The design of a short course that goes public requires more effort and attention from educators and developers than the design and delivery of many more traditional regular degree courses. This is because these courses are often online, interactive, visible to all, and stand-alone, that is, not necessarily part of a degree programme.

Short courses should, of course, be subject to quality assurance and measured against the same rigorous quality standards as any other type of provision. Providers (universities, training institutes, etc.) are responsible for the *internal quality assurance* of their short courses, and many, but not all, have started to implement this systematically.

In a few countries, quality assurance agencies have started to include the short-course provision offered by local higher education institutions (HEIs) in their periodic *external quality assurance* reviews of institutions and programmes. Recently, agencies have also begun to plan to include short-course provision by non-traditional providers, companies, and non-governmental organizations in their assessment scope.

The online provision of short courses leading to micro-credentials, and their expected dominance, at least quantitatively, opens avenues for quality assurance underpinned by real-time reviews from students, peers, employers, professional bodies, and media influencers, alongside the traditional, much slower, review and feedback exercises undertaken by the quality assurance and accreditation agencies.

Real-time review and endorsement by trusted parties is likely to gain importance quickly and revolutionize traditional quality assurance. Universities themselves will decide, either within networks or on their own, to endorse and recognize (de facto accredit) micro-credentialled short courses produced by others, by including them in their own curricula or by giving credit waivers for them, as is done already on a large scale when universities recognize student stays abroad (e.g. Europe's Erasmus+ programme), laboratory experience, field research, and work placements. In an example from India, courses taken on the national MOOCs platform SWAYAM can be recognized for up to 20 per cent of a credential (Malik and Annalakshmi, 2022).

3. Challenges in addressing current concerns

Possible actions:

- Encourage dialogue and peer learning on how to enhance the quality of short courses and online provision.
- Involve third parties (e.g. professional bodies) in the design and delivery of a micro-credential.
- Expand the scope of internal quality assurance and standard-setting to cover short course provision.
- Use real-time review and endorsement by trusted third parties to underpin quality assurance exercises.
- Rethink the role of external quality assurance agencies to include proactive coaching of providers.

Challenge 2. National and sectoral quality assurance systems are absent or underused

Concern 2: Short courses leading to micro-credentials are left unreviewed by national or sectoral quality assurance systems.

Counter-argument 2: A growing number of countries are setting up or reviewing national and sectoral quality assurance systems; they could be encouraged to include short courses in quality reviews.

Not all countries and not all sectors have effective quality assurance systems in place. Some systems cover only part of provision, for example only the public sector or only the private sector, and the majority focus only on full degrees at certain types of institution. Lack of systematic internal and external quality assurance feeds an already existing mistrust of new types of provision and provider. A growing number of quality assurance agencies are, however, developing policies and guidelines on

reviewing — directly or indirectly — the quality of short courses leading to micro-credentials.

Possible actions:

- Encourage dialogue and peer learning among policy-makers and practitioners on accelerating the development and widening the scope of national and sectoral quality assurance systems.
- If appropriate, consider outsourcing part of the external quality assurance process to agencies from other countries.

Challenge 3: There are doubts about the pedagogy of short courses leading to micro-credentials

Concern 3: Micro-credentials use outdated pedagogy, such as videotaped lectures.

Counter-argument 3: Much progress has been made in interactive e-learning for online course provision.

Many but not all micro-credential courses are delivered online. Online pedagogy has made impressive progress in recent years (as has classroom pedagogy). Online courses now offer interactive elements, collaborative learning, and student–teacher feedback. But good practice has not yet reached all courses and all audiences; teachers need time and support to develop more attractive formats that keep today’s digitally skilled learners interested and motivated.

Possible actions:

- Encourage dialogue and peer learning about online pedagogy between teachers and course developers.

3. Challenges in addressing current concerns

- Examine, make available, and disseminate examples of good practice in e-learning.
- Evaluate short courses and micro-credentials against national and sectoral qualifications frameworks.

National qualifications frameworks (NQFs) provide a reference for skill levels — from basic skills to the most advanced — through *level descriptors*. Level descriptors express what a successful learner is supposed to know, understand, and be able to do. The intended learning outcomes (competencies) and the use of *credit points* quantify the intended learning effort. This information helps learners decide their next move and helps employers better understand the competencies of their current and future employees.

Challenge 4. National and sectoral qualifications frameworks are absent or underused

Concern 4: Micro-credentials cannot be linked to NQFs, which do not exist in all countries or cover only parts of the education system.

Counter-argument 4: Most countries have already developed or are developing a national qualifications framework. The need to incorporate fast-growing numbers of short courses and micro-credentials will accelerate this process.

The Global Inventory of regional and national qualifications frameworks (UIL, ETF, and Cedefop, 2017) shows that more than 150 countries were developing and implementing qualifications frameworks as of 2016, and more than 60 countries have already put in place a national qualifications framework that categorizes all forms and levels of

qualification, with clearly defined learning outcomes for each level. NQFs help to streamline learning outcomes and define level- and subject-related standards for issuing qualifications across different HEIs (UIL, Cedefop, and ETF, 2015).

National qualifications frameworks facilitate entry to and progression through higher education: students can move into and out of institutions, levels, and programmes, or switch between them, based on learning outcomes and competencies comparable across institutions and study programmes. Integrated national qualifications frameworks that cover all types of provision at all educational levels can be powerful tools for building more flexible and cohesive education systems. The frameworks also show the relationships between different types and levels of qualification (Cedefop, 2013).

Many countries still do not have a comprehensive qualifications framework (see *Part II*). Some tend to have separate qualifications frameworks for higher education and technical and vocational education and training (TVET), and credit transfer systems for academic and vocational education, which restricts permeability in the system. A possible reason for this lack of comprehensiveness may be the traditional compartmentalization of education systems and their offer, with separate provision, funding, legislation, policies, and departments for general, TVET, higher, and continuing education and training.

Possible actions

- Encourage dialogue and peer learning among policy-makers and practitioners on accelerating the development and widening the scope of national and

3. Challenges in addressing current concerns

sectoral qualifications frameworks.

- Develop all-encompassing NQFs from basic skills to most advanced — general education, TVET, higher education, and lifelong learning — providing reference to degree programmes and micro-credentials.

Challenge 5. Uncertainty about the level of short courses and micro-credentials

Concern 5: Short courses and micro-credentials fail to be level-specific, unlike, for example, bachelor and master programmes.

Counter-argument 5: Micro-credentials can very well be defined in terms of learning outcomes and situated at particular qualifications framework levels.

Short courses and micro-credentials are a relatively new part of the education offer, and are often thought of as free-floating continuing education and training. They can, however, be defined in terms of learning outcomes (competencies), credit points (volume/duration), and level, just like regular degree programmes.

Possible actions

- Providers and awarders could be encouraged to reference all short courses and micro-credentials against the relevant national, international, and sectoral qualifications frameworks.
- Public authorities could create *national registers* listing all recognized micro-credential qualifications (step 1) and related short courses (step 2) at the

correct level of the NQF.

- National registers would upload only those short courses and micro-credentials with learning outcomes, credit points, and levels parallel to the NQF.
- Independent expert panels could, within two months after upload, verify the extent to which the described learning outcomes broadly match the designated qualifications framework levels.⁹ Short courses and micro-credentials with incorrect or missing learning outcomes, credit points, and levels could be removed from the national register. They could still be taught and awarded, if national regulations allow, but without official recognition.

Challenge 6. Uncertainty about the duration and credit point value of short courses

Concern 6: The purpose of short courses and micro-credentials is to acquire competencies. Learning time and student workload are irrelevant for assessing their relative value.

Counter-argument 6: Competencies are the end goal, but in the process an indication of the average notional student learning time is useful information for both teachers and learners.

The goal of short courses and micro-credentials is the development of competencies, but transparency and recognition are served by also understanding the associated workload. Average notional student learning time matters for three reasons:

⁹ Panels could be composed of staff members (volunteers, seconded, or specially hired) of quality assurance agencies, teachers, learners, employers, professional associations, and public authorities, preferably from different UNESCO Member States.

3. Challenges in addressing current concerns

1. *Volume*. Time is an indication (a theoretical proxy) of the volume of learning or competencies achieved. Learning achieved in one day differs from learning achieved in three months.
2. *Learner protection*. Learners have the right to know (as a form of consumer protection) how long it will likely take them to finish a course, including exams. This is the notional time an average full-time learner would need to complete a course. Individuals may, of course, study faster or slower, full time or part time. They may acquire the same competencies through work or life experience over a shorter or longer period.
3. *Teacher guidance*. Notional learning time helps deans, directors of study, professors, teachers, and other instructors to plan course activities and avoid overloaded or lightweight curricula.

A system of credit points can help to organize the learning offer and make its composition more transparent for teachers and learners.¹⁰ The use of credit points is not necessarily limited to full programmes in higher education. They can be applied to all types and levels of learning, long and short, general, vocational (TVET) or higher education, and lifelong learning.

The most common purpose of credit point systems is to *inform progression decisions*. The use of a credit point system does not guarantee automatic recognition and progression either in students' home institutions or in those they wish to transfer to. Recognition and admission decisions

are taken by competent authorities such as universities (for further study), ministries and professional bodies (for licensing), and employers (for hiring or promotion). Agreements between those authorities can enhance recognition predictability, accelerate progression decisions, and make them (semi-) automatic in certain sectors or regions where such agreements would underpin trust and transparency.

Possible action

- Introduce a national credit point system or adapt the current one to connect well with (international) credit systems used in neighbouring countries, fostering regional and transnational exchanges.

Challenge 7: Uncertainty about progression decisions (e.g. recognition, admission, and degree award)

Concern 7: Short courses and micro-credentials offered by HEIs will make degree awarders lose control over what to recognize, whom to admit, and whom to award degrees to.

Counter-argument 7: Degree awarders will continue to set the standards for recognition, admission, and degree award, in line with national legislation.

The availability of micro-credentials will empower learners but will not replace the role of degree awarders as guardians of knowledge and trust in education and training. Degree awarders will continue to decide whom they admit to their degree

¹⁰ The European Credit Transfer and Accumulation System (ECTS) is based on the notional time an average capable full-time learner needs to acquire intended learning outcomes (competencies) through regular course work. One ECTS credit point stands for 25–30 hours of learning (including self-study and exams). ECTS was developed to serve mobile students with a European Union Erasmus programme grant. The system is now used more generally for course design, implementation, and recognition purposes in the wider European Higher Education Area.

3. Challenges in addressing current concerns

programmes and shorter courses, at what stage, and under which conditions, in accordance with local and national rules and regulations. Available places, fees, language requirements, and course prerequisites are factors that come into play.

Possible actions

- Encourage degree awarders to adopt and publicize positive lists of short courses and micro-credentials that match their degree programmes and would therefore be considered for credit waivers.
- Call upon competent authorities to promote regional and sectoral progression agreements to facilitate and automate recognition and progression decisions.

Challenge 8: Uncertainty about incoherent course combinations

Concern 8: Combining short courses and micro-credentials leads to fragmented and incoherent learning.

Counter-argument 8: Learners need diverse competencies, and they will be guided to choose short courses and micro-credentials that are close to their main area of academic or professional interest.

An abundance of easily accessible micro-credentials may create the impression of incoherence. But combining diverse sets of competencies (field-related, soft, STEM, arts, and social sciences) makes a person more versatile, open to new ideas, and better able to cope with unexpected challenges that will inevitably come their way.

Having said that, not every course will be accessible to all learners and not every combination of short courses and micro-credentials should automatically lead to a degree. Learners must be informed about course and degree prerequisites and guided towards the most viable combinations.

Complex tasks in our societies will continue to require the completion of long, correctly sequenced series of courses, or indeed the completion of full degrees in certain domains such as medicine, law, engineering, and teacher training.

Full degree programmes will therefore remain the point of reference (at least for a while) and the favourite option of many secondary school leavers and young graduates. Being part of a community of learners on campus for a longer period is a valuable and formative experience, and functions for many as a rite of passage into adulthood.

However, all learners, young and old, may need shorter courses and micro-credentials to update and upgrade their competencies, foster their personal development, and enhance their labour market resilience.

Possible actions

- Train professional counsellors in academia and elsewhere to help learners to compose coherent and stackable packages of learning, including short courses and micro-credentials.
- Establish course platforms that gently nudge learners from one related short course to the other (cf. YouTube).

3. Challenges in addressing current concerns

Challenge 9. Uncertainty about the assessment and certification of short courses

Concern 9: Micro-credentials are easy to falsify, as their assessment is less regulated by HEIs. Their certification is therefore less reliable than that of regular degree programmes.

Counter-argument 9: Assessment falsification is part of academic life, but there are many ways to mitigate it. All certifications may fall victim to fraud, but (digital) authentication techniques have improved, and national registers provide transparency.

There is a concern that micro-credential assessment can easily be subject to fraud, since micro-credentials are often obtained via e-learning where assessment procedures are less consolidated than in face-to-face teaching. Universities worldwide are, however, experimenting with new types of assessment (e.g. open book, collective, online proctoring) to mitigate fraud and also for pedagogical reasons. They reinvent surveillance at a distance, using artificial intelligence. They set up secure regional assessment centres. Digitally signed credentials and blockchain also help to reduce fraud. There are already many national initiatives and university-based projects for blockchain platforms designed to create, maintain, and verify academic credentials.¹¹

School diplomas, TVET certificates, bachelor's and master's degrees, and MBAs are familiar documents, well-known to providers, learners, and their families and employers. Micro-credential certificates are a new phenomenon that may arouse uncertainty and suspicion. Providers and public authorities can take action to alleviate the uncertainty by promoting the use of national registers.

Possible actions

- Providers and awarders can learn from each other on how to combat fraud. They should be encouraged to clearly define the assessment methods and their relation to the intended learning outcomes (competencies). National registers would only upload those short courses and micro-credentials with well-defined assessment criteria.
- Independent expert panels could, within two months after upload, verify the extent to which the described assessment methods broadly match the intended learning outcomes.¹² Short courses and micro-credentials with incorrect or missing assessment methods could be removed from the national register. They could still be taught and awarded, if national regulations allow, but without official recognition.
- National registers would upload short courses only if they lead to digitally authenticated micro-credentials (with an authenticated paper version upon request).

¹¹ <https://etico.iiep.unesco.org/fr/promising-disputed-blockchain-answer-fraud-and-corruption-education>

¹² Panels could be composed of staff members (volunteers, seconded, or specially hired) of quality assurance agencies, teachers, learners, employers, professional associations, and public authorities, preferably from different UNESCO Member States.

3. Challenges in addressing current concerns

Challenge 10. Uncertainty about the value of micro-credentials on the labour market

Concern 10: Short courses and micro-credentials have little added value on the labour market.

Counter-argument 10: Employers appreciate the up-to-date nature of short courses and micro-credentials and will increasingly rely on the information they contain when hiring or promoting employees.

Employers seek employees with up-to-date competencies. Evidence about the outcomes of micro-credentials is limited and further studies are needed. Nevertheless, some studies already indicate that shorter programmes do provide at least a temporary *labour market boost*, and that stacking micro-credentials may improve labour market prospects (OECD, 2021b). In the future, specific tracer studies customized for the specificities of micro-credentials may be useful tools for assessing their market relevance. Improved cooperation between universities and employers will benefit all by supporting innovation:

Strengthening the interplay between skills, innovation and training will in turn help to increase companies' capacity to innovate, bring new products to market and ultimately boost an innovation culture.

In terms of their education function, universities have a key role to help address labour shortages and to respond to the long-term challenges posed by structural skills mismatches. Improving cooperation with employers and widening access through short courses and micro-credentials will also help universities to offer more labour market relevant education and training to adults. (BusinessEurope, 2022)¹³

Short courses and micro-credentials are a way to acquire new competencies and re-skill at relatively short notice. Online registers will create real-time transparency and help to match employers' and learners' wants. The actual hiring decision will also continue to depend on factors such as job availability, salary expectations, and language requirements.

Possible actions

- Encourage providers, awarders, and register managers to add feedback from learners and employers about the labour market value of short courses and micro-credentials.
- Encourage employers to adopt and publicize — individually or collectively — a positive list of short courses and micro-credentials that match current and future job and promotion opportunities.

¹³ Remarks of Maxime Cerutti, BusinessEurope Director of Social Affairs, during the Forum of Universities for the Future of Europe, which took place at the initiative of the French presidency of the Council of the European Union on 26 January 2022.

4. Building a multi-actor learning ecosystem: who does what?

The successful roll-out and take-up of short courses leading to micro-credentials requires the commitment and effort of numerous actors inside and outside the education and training world. These actors play different roles, directly in teaching- and learning-related activities (on stage) or more indirectly in support activities (backstage). All actors, whether learners, course providers, employers, quality assurance agencies, or others, operate according to their country's rules and regulations, including the relevant international normative instruments managed by UNESCO.

4.1. Primary actors

Learners

Learners of all ages and backgrounds can apply to follow short courses, pass assessments, and obtain micro-credentials. As stated in *Chapter 2*, micro-credentials can be acquired before, during, after, as part of, in addition to, or instead of regular programmes of study. Learners can also opt to pass assessments and obtain micro-credentials without following the associated short courses, by applying directly for the recognition of prior learning if they think they already have a given competency. This happens frequently when applicants for study programmes sit entrance tests, demonstrating for instance their language skills or other generic or specific competences. It is up to

the receiving institution, the degree awarder, to define the entrance conditions, give credit waivers, and decide on their quantity and level. Motivated young people with access to information on micro-credentials, especially in resource-constrained education settings, may develop skills more rapidly and at low cost compared to options offered by the formal education system. Micro-credentials (if adequately regulated) can thus function as an equity tool. However, available places, fees, language requirements, and prerequisites may limit access to courses and assessments. Registers could be established to help individual learners keep track of the courses they have followed, the micro-credentials they have obtained, and the vouchers they are entitled to (through portfolios, wallets, individual learning accounts). Registers should fully respect national and international data protection and privacy regulations. Learners should be the owners of the micro-credentials they receive and be able to share them digitally with third parties.

The ownership principle is linked to the concept of digital self-sovereign identity – the empowerment of individual learners to own, manage, and share details of their credentials without the need to call upon the education institution as a trusted intermediary.¹⁴ Citizens worldwide should be able to consult and share their authentic educational data with whoever they want, whenever they want, wherever they are.¹⁵

¹⁴ Europass framework for digitally signed credentials, background document prepared for the expert workshop on 6 November 2018 promoted by the European Commission.

¹⁵ This is the goal of the global Groningen Declaration Network of public and private digital learner data depositories, educational institutions, government bodies, third-party academic data processors, and innovative companies that want to enhance digital student data portability to facilitate educational and professional mobility.

4. Building a multi-actor learning ecosystem: who does what?

Course providers may be schools, universities, TVET training institutions, chambers of commerce, professional bodies, associations, companies, public authorities, international organizations, non-governmental organizations, or any other entity in accordance with national law. Course providers may act on their own and in collaboration with others, including when acting as the awarding body of micro-credentials, a role that most providers fulfil as well.

Course providers may give credit point waivers for short courses and micro-credentials delivered by others. They could publish positive lists of micro-credentials, which they may accept as part of their degree programmes, and accordingly develop transparent digital recognition management solutions.¹⁶

Teachers, researchers, and support staff produce and co-produce short courses. They do so on their own or in collaboration with colleagues from other departments and other institutions, as well as with employers. They share their knowledge and expertise with a much wider audience than before. They need support in dealing with pedagogical and technological challenges and opportunities.

Assessors judge whether the intended learning outcomes (competencies) have been acquired by the learner. The assessor can be the teacher of the short course, another teacher in charge of assessment, a committee on behalf of the education provider, an

invited external examiner, a testing service, or any other entity recognized by the awarder of the qualification.

Awarding bodies of micro-credential qualifications (certificates, badges) may be the providers of the short courses themselves, assessors, or other entities as decided by Member States.

4.2. Presenters

Online *platforms* play an important role in many areas of our ‘platform economy’ (making hotel reservations, finding transport options, etc.). They also serve educational needs, helping learners to find the right course, assessment centre, or related job offer. Platforms can be national or international, public or private.¹⁷

Registers are official, formally vetted lists of actors and tools, essential for the functioning of the learning ecosystem. The transparency they create helps to build trust among all parties concerned. Registers can list information for learners on courses (micro-credentials, vouchers), providers (courses, micro-credentials, credit point waivers), assessors (providers and others), awarders (providers and others), quality assurance agencies and the providers they review, credential evaluators and the micro-credentials they evaluate, and employers (linked job opportunities and promotions).¹⁸

¹⁶ Recommendation Position Paper Bologna Digital (Kiron Open Higher Education, 2018).

¹⁷ Well-known international platforms in higher education are Coursera, edX, Udacity, and FutureLearn. An example of a national platform is France Université Numérique (FUN).

¹⁸ An example of a comprehensive official register is the French RNCP (see Box 9).

4. Building a multi-actor learning ecosystem: who does what?

4.3. Controllers

Quality assurance agencies are bodies that carry out periodic external reviews of course providers and degree programmes. Increasingly, agencies include short-course offerings in their external quality review exercises, in addition to programme and institutional reviews. Agencies apply their own standards and those set by public authorities, professional bodies, public and private labels, and course providers themselves.

Credential evaluators assess the veracity and value of micro-credentials and may confer certificates and digital badges.

Traditional and social *media* may report on the uptake of short courses, assessment, and flexible learning pathways. They may provide information on learner experiences and labour market impact.

4.4. Enablers

Governments may adopt policy frameworks to enable and support learners, course providers, and other actors. They may adopt national qualifications frameworks, which are strong enabling factors in competency development. They regulate recognition and quality assurance. They licence and fund course providers. They provide grant support to individual learners (e.g. funding under individual learning accounts) and promote learner guidance and counselling. Countries can consider the creation of *individual learning accounts*, which could be used to provide and channel vouchers that citizens could use to pay for quality courses, leading to recognized micro-credentials.

Employers may encourage current and future staff to follow short courses, do assessments, and obtain micro-credentials. They may support their staff via time-release and top up their individual learning accounts. They may link job opportunities and promotions to specific micro-credentials (those on positive lists). They may advise course providers on the competencies most needed in their field of activity.

Trade unions may push to include support for workers taking short courses in labour agreement negotiations. They can take part in negotiations on regulatory frameworks, funding schemes, and recognition issues, together with employer organizations.

Sponsors, philanthropists, foundations, international organizations, and regional development banks may support course providers in their country, world region, or field of interest. They may decide to subsidize and top up the individual learning account of learners from poorer backgrounds.

The above list demonstrates the multiplicity of actors involved in the successful roll-out and take-up of short courses leading to micro-credentials. These actors need to coordinate their efforts to design feasible solutions for the development of flexible learning pathways benefiting learners, the economy, and society at large. National authorities should take the lead in ensuring actors work together for the development of an attractive learning offer and a supporting regulatory framework, and designate coordinating bodies or committees to supervise the process.

Part II

Global developments

This part of the paper describes developments in European and OECD countries and in the Global South (developing and emerging countries). It highlights trends and presents examples of good practices. The description focuses on the success factors and the challenges that influence the emergence and roll-out of micro-credentials. These include diversification in the learning offer, quality assurance, national qualifications frameworks (which frame levels, learning outcomes, credit points, assessment, and certification), and multi-actor policy initiatives.

5. Experiences from European and OECD countries

5.1. Diversification in the learning offer

In European and OECD countries, citizens have access to a varied higher education offer organized at national or regional levels. Young people are encouraged to follow programmes of typically three to five years' duration in order to acquire the competencies they need in knowledge-intensive societies. But shorter offerings have also always existed: diplomas, associate degrees, foundation courses of one or two years, short cycle two-year professional programmes, 'classes préparatoires' (preparatory classes) for French Grandes Écoles, top-up courses, MBAs, continuing professional development courses, and so on.

In 1999, 29 European higher education ministers started a huge convergence exercise, launching the 'Bologna process' which intended to establish a European Higher Education Area. The Bologna declaration called for the adoption of a higher education qualifications structure essentially based on two main cycles. The first cycle results in a degree typically called 'bachelor', and the second cycle leads to the master and/or doctorate degree, the latter later renamed 'third cycle'. The Bologna process also foresees the possibility of intermediate qualifications, notably foundation programmes in professional higher education.

This rich and diverse learning offer, built up in European and OECD countries over decades, has substantially increased the competency level of a larger portion of the population than ever before. In 2020, more than 40 per cent of the 25-to-34-year-olds in the EU had completed tertiary education (Eurostat,

n.d.).¹⁹ Despite this high level of educational attainment, not all capable learners are able to enrol in the programmes and courses they need for intellectual pleasure and labour market resilience. Today only 1 in 10 adults in Europe undertake training in a given four-week period, and less than half of all adults report any formal or non-formal education or training activities over a period of 12 months (Insee, 2020).

Demand for new knowledge, skills, and further competencies is not fully met by the offer, despite the current degree of diversification of institutions and their programmes. Strong education-driven inequalities persist in European and other OECD countries. Education systems tend to reinforce existing social inequalities through a segmented education system. Re-skilling and up-skilling the workforce to meet technological change is not sufficiently addressed.

Meanwhile, shorter-term educational experiences leading to micro-credentials are on the rise, inside and outside formal higher education, often through online and blended teaching, learning, and assessment. Online pedagogy has improved drastically before and during the COVID-19 lockdowns. According to data collected by the World Economic Forum, there has been a significant increase in usage of virtual tutoring, video-conferencing tools, and online learning software since Covid-19 (Li and Lalani, 2020). Digitalized learning analytics applied to online provision have already proven to be very powerful, and digital certificates or badges are becoming the norm in a time of blockchain and cyber-security awareness.

¹⁹ ec.europa.eu/eurostat/statistics-explained/index.php?title=Educational_attainment_statistics#:~:text=In%202021%2C%2023.6%20%25%20of%20people,attainment%20level%20i.e.%20tertiary%20education

5. Experiences from European and OECD countries

In addition, the development of short courses is high on the agenda in many OECD countries. For instance, in 2021 the government of Japan invested in projects designed to support HEIs to develop and offer short courses (around 60 hours in total) targeting individuals who were on temporary contracts or unemployed (Ministry of Education, Culture, Sports, Science and Technology, 2020).

New models and standards for short courses are slowly emerging in Singapore and South Korea as well. Singapore has launched a lifelong learning credit bank, 'SkillsFuture'. It provides information on occupations, career pathways, and emerging skills, as well as a list of training programmes for skills upgrading and mastery. It also offers an account to every citizen, including the facility to bank credit points. The system aims to create a common skills language for individuals, training providers, and employers (Oliver, 2019: 33).

The stackability of micro-credentials is already a reality in some countries. In the UK, some universities award a degree or other qualification to a learner who has acquired at least a third of the required micro-credentials from that university, while others require more than a third. Some universities accept credentials from specific institutions only (Ergin and Brennan, 2022).

5.2. Quality assurance

Functioning quality assurance for short courses leading to micro-credentials is key to the acceptability of this new type of provision and makes it possible to implement them across programmes, sectors, and countries.

In the now 49 countries of the European Higher Education Area, established through the Bologna process, both internal and external quality assurance is well developed. One of the purposes of the Bologna process, launched in 1999, has been to encourage cooperation in quality assurance for higher education with a view to developing comparable criteria and methodologies. National and regional governments in Europe have set up an elaborate system for quality review based on common European Standards and Guidelines for internal quality assurance (by providers) and external assurance (by agencies) of degree programmes (ENQA et al., 2015).

European quality assurance agencies tend to focus on institutions and degree programmes. They are now discovering that short courses are a growing part of institutional provision and ought to be reviewed as well – not at the level of individual courses or modules, but by making sure that HEIs have a functioning internal quality assurance system in place to cover them. Useful guidance is provided by the European Association for Quality Assurance in Higher Education (ENQA) and the European Association of Distance Teaching Universities (EADTU). In 2017, the EU adopted a set of quality assurance principles for qualifications (EU, 2017: Annexe IV).²⁰

Similar debates are ongoing in the United States. A Working Group convened by CHEA/CIQG and the American Association of Collegiate Registrars and Admissions Officers (van der Hijden, 2019) drew the following preliminary conclusions in 2019:

²⁰ These common principles are fully compatible with the European Standards and Guidelines for Quality Assurance in the European Higher Education Area and with European Quality Assurance in VET. Depending on national circumstances, these principles may not apply to general education.

5. Experiences from European and OECD countries

BOX 4

Quality Assurance principles for national and regional qualifications frameworks

All qualifications with an EQF level should be assessed to enhance trust in their quality and level. In accordance with national circumstances and taking into account sectoral differences, quality assurance of qualifications with an EQF level should:

- address the design of qualifications as well as application of the learning outcomes approach
- ensure valid and reliable assessment according to agreed and transparent learning outcomes-based standards, and address the process of certification
- include feedback mechanisms and procedures for continuous improvement
- involve all relevant stakeholders at all stages of the process
- be composed of consistent evaluation methods, associating self-assessment and external review
- be an integral part of the internal management, including subcontracted activities, of bodies issuing qualifications with an EQF level
- be based on clear and measurable objectives, standards, and guidelines
- be supported by appropriate resources
- include a regular review of the external monitoring bodies or agencies carrying out quality assurance
- include the electronic accessibility of evaluation results.

Source: European Union, 2017: Annexe IV.

- The basic quality criteria are the same in long-term and shorter-term learning experiences.
- New delivery modes (e.g. online and blended learning) will require development of specialized knowledge and expertise among providers and accreditors.
- Accreditors should include shorter-term educational experiences in their periodical review of institutions and programmes.

Accreditors should organize reviews for (series of) shorter-term educational experiences offered by alternative providers.

5.3. National qualifications frameworks

National qualifications frameworks (NQFs) have been adopted in all European and OECD countries. They classify qualifications by level, based on learning outcomes. The transparency of NQFs informs debate and stimulates reforms at national and course provider level. NQFs also help to make qualifications easier to understand and compare, and allow people to move more easily between education and training institutions and between sectors.²¹

Professional bodies and academic experts have applied generic qualifications frameworks to the sectoral level, generating

²¹ www.Cedefop.europa.eu/en/projects/national-qualifications-framework-nqf

5. Experiences from European and OECD countries

profiles for a series of subject areas and professional occupations.²²

In Europe, NQFs are modelled after the European Qualifications Framework for Lifelong Learning (EQF) of the EU and the Qualifications Framework for the European Higher Education Area of the 49 countries participating in the Bologna process. Qualifications are expected to be referenced against a NQF, and their level to be periodically reviewed to maintain them in the system.

5.4. Credit points

All European and OECD countries use credit point systems. In Europe, the European Credit Transfer and Accumulation System (ECTS)²³ is based on learning outcomes and notional student workload: one ECTS credit point stands for 25–30 hours of notional student time, including classes, self-study, library, laboratory, work placements, other exercises, and exams.

Notional student time is merely an indication, and individual learners may take more or less time, in formal education or elsewhere, to achieve the expected learning outcomes. ECTS is supported by documents (course catalogues, transcripts of records). The

recognition decision (number and level of credit points waived) remains at the discretion of the receiving institutions.

Uptake of both qualifications frameworks and the ECTS as tools for curriculum design, teaching, learning, assessment, and recognition of learning varies between and within countries, institutions, and disciplines. More could be done to promote the consistent use of learning outcomes, levels, and ECTS credit points in Europe.

5.5. Assessment and certification

Reliable assessment according to agreed and transparent standards based on learning outcomes is essential for a properly functioning qualifications system. Assessment can be done in-house by course provider staff, or outsourced to external assessment centres, professional associations, and other bodies trusted by the awarding institution. Digitalized certification is increasingly applied across Europe, using blockchain technology: it fits the new EUROPASS setup²⁴ and respects EU GDPR data protection regulation as well as the principles governing student data portability as promoted by the Groningen Declaration Network.

²² This has been done notably through the Tuning project: academics, students, alumni, employers, and public authorities cooperate in all world regions to identify points of reference for generic and subject-specific competences of first and second cycle graduates in a series of subject areas. These points of reference are prepared for curriculum design and evaluation to provide a common language for describing what curricula are aiming at.

²³ Profiles for a series of subject areas and professional occupations were developed for the EU Erasmus programme students and are now applicable to all students in all 49 Bologna signatory states.

²⁴ The Europass is a set of online tools created by the European Commission to support European citizens to document their skills, qualifications, and careers in digital format. For more information see: <https://europa.eu/europass/en/about-europass>

5. Experiences from European and OECD countries

5.6. Building multi-actor learning ecosystems – national, sectoral, and regional initiatives

Educational institutions, learners, employers, and quality assurance and regulatory agencies are among the key stakeholders with a significant interest in developing and successfully implementing short courses leading to micro-credentials. Other prominent stakeholders include national bodies representing educational institutions and government departments (Brown et al., 2021: 249).

It is recognized in Europe and OECD countries at national, sectoral, and regional policy level that the time is ripe to take concerted action on short courses and micro-credentials. Government cooperation with other stakeholders such as quality assurance (QA) agencies and training providers is particularly important. This is illustrated by the examples below (Boxes 5–8), of initiatives taken by Australia, New Zealand, Canada, and France.

This follows the implementation of a similar approach in the New Zealand Qualifications Framework (NZQF) in 2019.

In Canada, the eCampusOntario micro-credential framework was developed to guide educators, employers, and policy-makers in the development of new micro-credential initiatives. It was jointly set up by representatives from post-secondary institutions and workforce partners to offer a common standard to facilitate collaboration within the ecosystem.

France has a strong approach to developing a register which validates and lists all certified qualifications. France Compétences,²⁵ a government body created in 2019, is in charge of regulating and funding professional training, and maintains a website where anyone can verify the public recognition of a qualification.

BOX 5

Australian online micro-credentials platform

In response to suggestions from a review of the Australian Qualifications Framework (AQF) published in 2019, the Australian government announced its intention to construct an AU\$4.3 million online micro-credentials platform or marketplace in June 2020. On this nationwide platform, an estimated 54 providers are expected to provide roughly 344 short online courses. A recent review of the AQF was completed in 2019 (Noonan et al., 2019). The study emphasized the growing popularity of micro-credentials and how they might help HEIs provide new programmes and courses that better fit the demands of potential students.

Source: Noonan et al., 2019; Selvaratnam and Sankey, 2021; Chanthadavong, 2020.

25 <https://www.francecompetences.fr/france-competences/#qui-sommes-nous>

5. Experiences from European and OECD countries

BOX 6

New Zealand/NZQA: piloting with micro-credentials

From July 2017 to June 2018 the New Zealand Qualifications Authority (NZQA) piloted three micro-credentials with Udacity, Otago Polytechnic, and the Young Enterprise Scheme. As a result of these pilots, the NZQA has now released a micro-credential system that aligns with the National Qualification Framework. The NZQA website presents information on expectations for tertiary education organizations (TEOs) submitting micro-credentials for approval, as well as information for employers, industry, and community/iwi on collaboration with TEOs to develop micro-credentials that meet their needs. The New Zealand Tertiary Education Commission also introduced a public funding system for micro-credentials in 2019, which means that all New Zealand HEIs are eligible to apply for funding to assist them in delivering micro-credential programmes.

Source: Tertiary Education Commission, 2019; Brown et al., 2021.

BOX 7

eCampusOntario's micro-credential framework

The eCampusOntario micro-credential framework provides a common standard on which to collaborate and create micro-credential programming that fills an identified skills gap.

A how-to guide (eCampusOntario's Micro-Credential Toolkit) was published to help institutions develop such programmes. The toolkit is a frame of reference that covers topics such as the seven phases of the micro-credential lifecycle, tools to support employer–educator partnerships, how to involve learners as co-creators, and pathways for integrating micro-credentials into academic programming.

Source: <https://micro.ecampusontario.ca>

BOX 8

France — creating a register for qualifications

The National Directory of Professional Certification (RNCP) lists all the training courses and all the titles certified by the National Commission for Professional Certification. A certified title allows its holder to show proof of the skills, aptitudes, and knowledge necessary for the exercise of a trade or an activity in a professional field. All the titles registered with the RNCP are accessible through initial or continuing training, notably via the validation of acquired experience (VAE — recognition of prior learning).

Source: Ministère de l'emploi et de l'insertion : <https://travail-emploi.gouv.fr/formation-professionnelle/certification-competences-pro/vae>.

5. Experiences from European and OECD countries

In addition to country-led initiatives for micro-credentials, action is also being taken at regional level, such as by the EU. During 2020 and 2021, the European Commission supported the preparation of two EU Council Recommendations on Micro-Credentials and

Individual Learning Accounts, to guide policy development among EU Member States in these two areas. The EU Employment and Social Affairs ministers adopted the two Council Recommendations on 16 June 2022.

BOX 9

EU Council recommendations on individual learning accounts and micro-credentials

Individual learning accounts

The Council Recommendation on individual learning accounts²⁶ aims to ensure that everyone has access to quality training opportunities tailored to their needs, throughout their working lives, whether employed or not. These accounts should allow all working-age adults to accumulate and preserve individual training entitlements over time, and use them for eligible, quality-assured training, guidance, and validation in their interest and at their initiative.

The Recommendation invites Member States to embed the individual learning accounts in an enabling framework, which includes a national registry of training, validation, and career guidance opportunities eligible for funding from the training entitlements as well as paid training leave arrangements for employed adults. It outlines how Member States can effectively combine financial and non-financial support to tackle the existing barriers to training participation in a joined-up manner.

Micro-credentials

The Council Recommendation on a European approach to micro-credentials for lifelong learning and employability²⁷ establishes an EU approach to micro-credentials which can support the quality, transparency, and uptake of micro-credentials across the EU to enable lifelong learning and employability. Micro-credentials certify learning outcomes following a brief learning experience. They offer a flexible, targeted way to help people develop the knowledge, skills, and competencies they need for their personal and professional development.

The Recommendation provides building blocks including a definition, standard elements for describing micro-credentials, and principles for designing and issuing micro-credentials. These building blocks can enable the understanding and recognition of micro-credentials across institutions, businesses, sectors, and borders. The Recommendation also outlines key areas for action on micro-credentials in education and training and in labour market policies.

Sources: Council of the European Union, 2022a; 2022b.

²⁶ <https://data.consilium.europa.eu/doc/document/ST-8944-2022-INIT/en/pdf>

²⁷ [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022H0627\(02\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022H0627(02)&from=EN)

5. Experiences from European and OECD countries

Lastly, networks of providers, such as the European MOOC Consortium (EMC) created in 2017, can take the initiative to set up standards for micro-credentials. EMC brings together the largest European MOOC

platforms.²⁸ Its objective is to strengthen the credibility of MOOCs as a learning approach in higher education. EMC has proposed a framework for micro-credentials to member organizations.

BOX 10

European MOOC Consortium (EMC)

Distance learning institutions that form the EMC presented the idea of a Common Micro-Credential Framework (CMF) at the EADTU-EU Summit on 30 April 2019 in Brussels. Micro-credentials would:

- have a total study time of no less than 100 hours and no more than 150 hours, including revision for and completion of a summative assessment;
- be aimed at Levels 6 or 7 in the EQF or the equivalent levels in a university's national qualifications framework;
- provide a summative assessment that awards academic credit, either directly following successful completion of the micro-credential or via recognition of prior learning upon enrolment as a student in a university's course of study;
- operate a reliable method of ID verification at the point of assessment that complies with the university's policies and/or is widely adopted across the platforms authorized to use the CMF.

Source: European MOOC Consortium.

²⁸ <https://emc.eadtu.eu/>

6. Experiences from developing and emerging countries

6.1. Diversification in the learning offer

Despite high motivation by various research institutions and foundations, micro-credential uptake in academic institutions remains relatively low in developing and emerging countries compared to European and other OECD countries (Fong, Janzow, and Peck, 2016). This could be attributed partly to the fact that student demographics in the Global South typically oblige HEIs to focus on a growing number of secondary-school leavers. In addition, there is a lack of awareness of the subject among employers and academic institutions, resulting in low recognition of their value (Hickey, Willis, and Quick, 2015). Learners following short courses are typically not assured of their acceptance in the labour market nor of their value for further education and training.

But shorter-term educational experiences, often organized through online teaching, are on the rise in the Global South. In India, for instance, 4 million students were enrolled in distance education programmes in 2019/20, 1.1 million of them at the postgraduate level (Malik and Annalakshmi, 2022). This could create a solid foundation for short courses leading to micro-credentials, in addition to already existing national MOOCs platforms such as SWAYAM.

When countries invest in re-skilling or up-skilling initiatives, short courses and micro-credentials can develop rapidly. The government of Costa Rica initiated a re-skilling and up-skilling programme in collaboration with a digital learning platform, Coursera, which enabled 50,000 individuals to access selected courses in 2020 (Training Industry, 2020).

Some universities, including African ones, have started to develop initiatives for micro-credentialled short courses. The University of Cape Town (UCT), for example, includes micro-credentials in its university strategy 'Vision 2030', which aims to 'expand capacity to offer continuous education and micro-credentials' (UCT, 2021: 9). In a public lecture on the 'Changing Landscape of Higher Education', the Executive Director of the Tertiary Education Commission in Mauritius underlined the importance of stacking skill sets, known as micro-credentialing, for the future, and urged universities to consider subscribing to certification (University of Kwazulu-Natal, 2019).

More developments at the HEI level are taking place in Asia, where several universities have started to offer micro-credentials. An example is Malaysia, which offers over 300 micro-credentialled courses launched by public universities and over 2,000 courses by private universities as of May 2021. Universiti Sains Malaysia is one of the active universities in this respect.

In Thailand, the Ministry of Higher Education, Science, Research, and Innovation, jointly with UMAP (University Mobility in Asia and the Pacific), has launched a pilot programme to fulfil the needs of learners who seek to up-skill and re-skill, develop needed specific competencies, or simply pursue lifelong learning. The programme is composed of two strands. In strand A, participants can gain recognition for their existing competencies, earned in non-formal and informal settings. In strand B, participants can enrol in learning units offered by university providers.²⁹ The Ministry works with King Mongkut's University of Technology Thonburi (KMUTT),

²⁹ <https://sway.office.com/9UYg1r3d5hUtUvq2>

6. Experiences from developing and emerging countries

BOX 11

Micro-credentials at Universiti Sains Malaysia

The first university to implement flexible learning approaches through its distance education programme, in 1971, was the Universiti Sains Malaysia (USM). The university has continued to be at the forefront of flexible learning in the Malaysian educational system by expanding its entry points into the university. USM has developed re-skilling and up-skilling programmes to meet the demands of new technically advanced job opportunities.

One of the prominent developments within Flexible Learning Pathways in USM is micro-credentials. The university has introduced full micro-credential undergraduate programmes that allow students to complete undergraduate programmes based on their competencies and capabilities. It offers seven modules for nursing for over 100,000 students nationwide and has developed about 300 modules of micro-credential programmes for various other disciplines. As a next step, USM will be forming a consortium of institutions and universities to offer the best content for students and the public at large.

Source: Mahamd Adikan, 2022: 6.

which has created an online micro-credential programme open to enrolment as of 2022. Micro-credentials at KMUTT cover the full spectrum of social sciences, IT, liberal arts, and natural sciences. All programmes can be accessed for free. The University works with the Accredible digital badge and certificate platform to issue micro-credentials.³⁰

In the Philippines the Assessment Research Centre, in partnership with the Assessment, Curriculum and Technology Research Centre (ACTRC), has investigated the feasibility of using micro-credentials for the Alternative Learning System (ALS). The ALS offers an alternative pathway to existing formal education and is available to anyone who has not completed basic education as required by the Philippine constitution. The University of the Philippines will also conduct a Feasibility

Study on Micro-Certification for the ALS Philippines (ACTRC, 2021).

According to a detailed analysis of the literature by region (Brown and Mhichil, 2021: 17), in the Asia-Pacific region employability, closing the skills gap, and supporting work-based training and continuous professional development seem to be the more prevalent reasons cited for short-course and micro-credential development — unlike Europe, which lays greater emphasis on increased flexibility for learning and the promotion of lifelong learning as well as employability. This geographical difference suggests particular drivers could be more or less influential depending on the social-cultural context and the extent to which education is positioned as a private or public good.

³⁰ <https://usco2.umap.org/ProgramDetails/Details/370>

6. Experiences from developing and emerging countries

6.2. Quality assurance

The development of quality assurance systems has been a global trend since the 1990s. Most countries now have a QA agency for education, although only a few national quality assurance systems in the developing world have developed common educational standards or taxonomies related to required skills and competencies. This can prevent micro-credentials from being recognized and thus portable. Only in a very few countries have quality assurance agencies developed standards to accompany the recognition of micro-credentials.

There has been little research into whether terms such as ‘micro-credential’ are well understood by learners (the primary consumers) or their employers (Oliver, 2019: 14). As trust, authentication, and authorization are critical to the success of formal qualifications, the mass awarding of digital badges with little or no quality assurance could threaten credibility and result in a global ‘jungle of badges’ (Chakroun and Keevy, 2018). Quality assurance covering the provision of short courses would lead to a greater application of certification guidelines and reliable assessment.

BOX 12

Guidelines for the accreditation of short courses in Jamaica

The higher education landscape in Jamaica has evolved over the last decade, and micro-credentials play a crucial role in achieving the national goal of ‘Jamaicans empowered to achieve their fullest potential’, as outlined in the Vision 2030 National Development Plan. The University Council of Jamaica (UCJ) has developed a micro-credential approach for short courses designed to improve the competency of employees in Jamaica and to facilitate the integration of these training programmes into the tertiary education system.

With this objective in mind, UCJ has published ‘Guidelines for the Accreditation of Short Courses’, which serve as a guide for providers, businesses, and organizations in the development and structuring of credit point-based training programmes. These Guidelines have been developed to provide information about micro-credentials as well as guidance in the development of internal quality assurance systems required for designing, developing, delivering, and assessing micro-credentials for higher education and training institutions and other training providers. They also provide information on UCJ’s policies and procedures pertaining to the external quality assurance process. These Guidelines serve to inform the provision of any type of micro-credential, whether for up-skilling, re-skilling, or as a component of a full qualification, and will enable increased flexibility for the integration of micro-credentials into existing programme portfolios, while expanding capacity to meet industry needs, the advancement of competency-based practice in determining that learning outcomes have been met, and a well-articulated framework for the design, development, and delivery of micro-credentials that meet established standards.

Source: UCJ, n.d.

6. Experiences from developing and emerging countries

Several countries in the Caribbean and Asia have developed national guidelines for the accreditation of micro-credentials (see *Boxes 12 and 13*).

6.3. National qualifications frameworks

The creation of national qualifications frameworks is a global trend. According to the global inventory of qualifications frameworks developed by UIL, ETF, and Cedefop (UIL, ETF, and Cedefop, 2017), more than 150 countries were developing and implementing qualifications frameworks as of 2016. The development of national qualifications frameworks has often been stimulated by regional QFs. Currently seven regional qualifications frameworks exist, spread across all five continents.³³

Many countries see NQFs based on learning outcomes as tools to support educational reform, to improve the transparency

and relevance of qualifications, and to increase access to learning opportunities and pathways. More than 60 countries have introduced a national qualifications framework that categorizes all forms and levels of qualification with clearly defined learning outcomes for each level.

Some countries, such as Colombia, are willing and open to including micro-credentials in qualifications frameworks. The country went through a 10-year process of developing its national qualification system, thus facilitating the development of flexible learning pathways. Reacting to the OECD's evaluation of Colombian education (OECD, 2016), Colombia attempted to organize a tertiary-level national credit transfer system as well as public-private partnerships between educational institutions and the economic sector (Martinez-Barrios, 2022: 25). A new Colombian National Qualifications System is in the process of approval. Governed by

BOX 13

Guidelines for quality assurance of micro-credentials in Malaysia

In July 2020, the Malaysian Qualification Agency published guidelines for good practices for micro-credentials. The guidelines define several general policies, key principles, and design and delivery considerations for developing micro-credentials. They cover the internal quality assurance of micro-credentials offered by higher education providers (HEPs). The HEP must establish proof of both market need and a good pedagogical system. It must also establish, maintain, and improve an effective Quality Management System that covers all aspects of the design, development, delivery, assessment, monitoring, review, and improvement of the micro-credentials. HEPs may use existing programme development, design, approval, and implementation mechanisms to implement the internal quality assurance of micro-credentials.

Source: Zuhainis Saad, 2022: 18-19.

6. Experiences from developing and emerging countries

a collegiate inter-institutional committee, it proposes six subsystems that connect the worlds of education and work. This qualifications system includes the establishment of a national qualifications framework, quality assurance, and competency assessment and certification as pathways of lifelong learning (Martinez-Barrios, 2022: 26). Policies of flexibility and a four-year plan have been implemented at the university level, as exemplified by UNIMINUTO (see *Box 14*).

6.4. Building multi-actor learning ecosystems – national, sectoral, and regional initiatives

Short courses and micro-credentials require an enabling infrastructure to ensure the quality of services, as well as cooperation from stakeholders such as educators, employers, and policy-makers (Gibson et al., 2015). The policies and skills of stakeholders in the design and administration of short courses and micro-credentials, as well as policy frameworks and quality assurance, also play a major role (Ghasia and Smet, 2019).

BOX 14

UNIMINUTO in Colombia

UNIMINUTO, a private non-profit HEI, the largest in the country, with over 100,000 students, 156 programmes on 11 campuses, and 67 sites, has adopted a policy of flexibility with seven pillars:

- Individual learning paths
- Certification prior to higher education diplomas, including micro-credentials
- Postgraduate course offerings
- Diverse methodologies on and off campus for a hybrid and virtual platform
- Drop-on, drop-off for students who cannot study in a sustained manner
- Dual programmes combining learning environments for both industry and the classroom
- An institutional policy of transfer and recognition of previous knowledge, pathways, and diplomas.

Through its higher education agency's four-year plan, the City of Bogotá adopted a new model of flexible pathways, from access to graduation and through to employment. It adopted a qualifications framework to provide an inclusive and flexible higher education system to both the young and adult populations, combining many strategies developed in other countries. It has a student orientation and counselling programme for employability skills and entrepreneurship training that will hopefully be integrated into the national programme. Promoted through agreements between HEIs, training centres, city government, and industry, this model has received significant public financial support.

Source: Martinez-Barrios, 2022: 25–26.

6. Experiences from developing and emerging countries

An exploratory study of HEIs in Tanzania suggests that university lecturers and students are optimistic that micro-credentials stimulate lifelong and connected learning and expand the scope of a university's mandate. However, to profit from this potential, multi-level interventions are needed. The study recommends creating a micro-credentials ecosystem, formulating strategies and policies, deploying necessary infrastructure, and building the relevant skill-base (Ghasia and Smet, 2019: 219).

In conclusion, it appears that European and other OECD countries are more advanced with regards to the coherent

adoption, development, and recognition of short courses and micro-credentials at both country and pan-European levels. In developing and emerging countries, awareness is on the rise and some countries have already started to develop national policy frameworks for micro-credentials. Current initiatives in Thailand, Malaysia, and Jamaica offer valuable insights for other developing and emerging countries. More funding for education, development work, IT infrastructure, and research is required, and cooperation among countries helps support them in their response to the global micro-credentialling movement (Brown et al., 2021: 249).

Conclusion and recommendations for public authorities

This policy paper has presented short courses and micro-credentials as essential components of individualized flexible learning pathways, reaching out to more and different types of learners. Short courses may lead to the award of micro-credentials (certificates, badges) based on an assessment of the intended learning outcomes or competencies. Micro-credentials may also be awarded after assessment of prior learning, without participation in a specific course.

This paper has also described challenges that potentially threaten the development of micro-credentials. These range from real and perceived concerns about the quality of pedagogy to uncertainties about level, credit points, progression, coherence, assessment, certification, and labour market value. Each challenge has been accompanied by suggestions for possible actions to be taken by actors and competent public authorities.

Below are seven recommendations specifically targeted at public actors such as governments and their agencies.

1. Adopt a national policy framework for the promotion of micro-credentials

National policy frameworks should aim at ensuring the societal uptake of micro-credentials through standard-setting, promotion, guidance, regulation, and resource allocation. National policy frameworks should include the development of a regulatory system for micro-credentials, stipulating the conditions and standards for their recognition and stackability. Transparent goal-setting, clear planning, flexibility, and early involvement of all relevant parties will help build the necessary trust.

2. Create a multi-actor learning ecosystem

The effective broadening of learning requires coordinated efforts from teachers, schools, universities, TVET and other training providers, students of all ages, public authorities, employers, trade unions, assessors, awarders, platforms, registers, quality assurance agencies, credential evaluators, sponsors, and (social) media. All parties should be encouraged by national authorities to play their part and take ownership. Debates could be organized on the various elements of the national policy framework and ideas shared on how to build the most stimulating learning ecosystems.

3. Develop comprehensive national qualifications frameworks

All courses offered in a country must relate to a specific level in the national qualifications framework. Level numbers and descriptors help teachers, learners, and employers to situate the learning effort. Level descriptors define in general terms what a person knows, understands, and is capable of — the intended learning outcomes or competencies.

More detailed descriptors are to be found in sectoral qualifications frameworks (for engineers, nurses, etc.) and in course catalogues of schools, universities, TVET training institutes, and other providers. Level descriptors help to assess student achievement and inform quality assurance of provision. All courses need an indication of duration expressed in credit points, representing the time an average learner would need to achieve the intended learning outcomes.

Conclusion and recommendations for public authorities

National qualifications frameworks should cover: (a) all levels of education, from basic skills to the most advanced obligatory education, TVET, higher education, continuing education, and lifelong learning; (b) all types including degree programmes, short courses, micro-credentials, and flexible learning paths; and (c) all modes, including offline, online, blended, part time, full time, degree programmes, short courses, and flexible learning pathways.

4. Build the technological infrastructure for the digital storage of learning

Learners must have access to their records and be able to share them digitally with others. The learning provision itself – course materials, courses, and assessments – are increasingly available online. Functioning national education systems need easily accessible digital registers, listing learners' achievements, micro-credential qualifications, short courses, providers, assessors, awarders, quality assurance agencies, credential evaluators, employers, and job and promotion opportunities. Overcoming the digital divide will require significant investment in technological infrastructure by governments, course providers, private companies, and families. Countries need help to build up these systems gradually, using freely available open software and benefiting from networking and the experiences of others.

5. Ensure internal and external quality assurance

Provision of education must be of the highest quality and relevant to learners' life and work prospects. Course providers are encouraged to continuously adapt and improve

their educational offering through internal quality assurance mechanisms. Quality assurance agencies organize periodic external reviews. Quality assurance of short-course provision is expected to show exponential growth in the years ahead. Quality reviews will be underpinned by a steady flow of real-time feedback from learners, professional associations, employers, and (social) media, adding a new, more immediate, and user-relevant dimension to quality assurance.

New delivery modes (e.g. online and blended learning) will require new technological and pedagogical expertise on the part of course providers and quality assurance agencies. Ensuring reliable information on the quality of shorter-term educational experiences will be a challenge for the years ahead, and will no doubt be picked up by specialized platforms and the media. Transparency should be a criterion for both internal and external quality assurance.

6. Allocate resources to support course providers and learners

Course providers and learners need incentives to engage with micro-credentials. At present, national funding is mostly geared towards the provision of regular full degree programmes undertaken by cohorts of young learners. New national policy frameworks could change the classic funding formula to include the provision of micro-credentials, serving the education and training needs of people on a much wider scale. In addition, countries could create individual learning accounts, providing and channelling vouchers with which citizens could pay for quality courses leading to recognized micro-credentials.

Conclusion and recommendations for public authorities

7. Carry out accompanying action research

The roll-out of micro-credentials should be based on the realities of educational and societal practice. It is important to better understand the obstacles that hinder their development. It would also be very useful to understand in more detail the added value for individual learners, the economy, and society at large over time. Countries should therefore keep track of developments in provision and uptake through a set of accompanying action research measures, closely observing what

works and what does not in implementing national policies, developing national qualifications frameworks, setting up technological infrastructure, ensuring internal and external quality assurance, and allocating resources. Countries will need to be supported in the development of their national policy frameworks and should be encouraged to undertake benchmarking and peer learning to benefit from the experience of more advanced countries.

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Useful websites

Cedefop National Qualifications Frameworks (NQFs)

www.Cedefop.europa.eu/en/projects/national-qualifications-framework-nqf

Coursera Learner Help Center

www.coursera.support

eCampusOntario Micro-credential Toolkit

micro.ecampusontario.ca

ETICO. etico.iiep.unesco.org/fr/promising-disputed-blockchain-answer-fraud-and-corruption-education (last accessed August 2022).

European MOOC Consortium

emc.eadtu.eu/

Eurostat

ec.europa.eu/eurostat/statistics-explained/index.php?title=Educational_attainment_statistics

France Compétences

www.francecompetences.fr/france-competences/#qui-sommes-nous

Groningen Declaration Network

www.groningendeclaration.org/

Kiron Support

support.kiron.ngo/hc/en-us

Micro-credential project at King Mongkut's University of Technology Thonbui

usco2.umap.org/ProgramDetails/Details/370

Ministère du Travail, du Plein Emploi et de l'Insertion: La validation des acquis de l'expérience (VAE)

travail-emploi.gouv.fr/formation-professionnelle/certification-competences-pro/vae

New Zealand Qualifications Authority

www.nzqa.govt.nz/providers-partners/approval-accreditation-and-registration/micro-credentials/

Thailand UMAP Micro-Credential

sway.office.com/qoANsTaHEN0gf2yQ?ref=email

About the paper

Several concurrent trends are increasing the likelihood that short courses, micro-credentials, and flexible learning pathways will become a regular and even dominant feature of education and training globally. This paper discusses these trends and existing definitions, and proposes a universal working definition for micro-credentials developed by UNESCO.

The paper discusses challenges that are currently perceived as obstacles, and identifies actions that could contribute to the successful roll-out of short courses and micro-credentials. The paper then draws on country experiences, studies, and projects from all world regions, and highlights good practices. It ends with seven recommendations targeted at public policy-makers to foster coordinated action for a successful development of micro-credentials.

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