The Micro-Credential Users' Guide

MicroHe

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1 Abstract

As our digital ways of working expand in Industry 4.0, accompanied by the increased need for soft intra- and extra-personal skills (World Economic Forum, 2018), the globalised knowledge economy demands continual and lifelong learning of all adults to remain productive. This trajectory has been largely shaped by external drivers forecasting the need for rejuvenated workforces. The demand from learners for short and flexible forms of learning, and from industry and employers for verified skills-based credentials to satisfy the needs of the new world of work (Deloitte Access Economics, 2017) have since 2008 challenged and changed the way HEPs provide and deliver higher education. Industry and demand-driven, bite-size, personalised and opened online courses and certifications have transformed the landscape of education.

Education leaders, practitioners and technologists are being challenged to respond to demands for new forms of credentialing, such as various forms of micro-credentials, digital badges, nano-degrees, and to define how these fit with existing credentialing frameworks and an emerging digital credentialing ecosystem (Chakroun & Keevy, 2018). At the European level, the drive to digitise credentials has been prioritised by the Bologna Digital Agenda and the EU's Digital Education Action Plan.

The conventional or university credentials like the diploma, bachelors, masters and doctorate characterised as macro-credentials have been the primary means to acquire qualifications for work, profession and further studies. These qualifications often described nationally in the qualifications framework, represent a formal recognition of the achievement of a particular body of knowledge, skills-set and related professional values through an extended period of prescribed study by a learner from an authorised HEI.

In contrast, micro-credential (MC) is a certification of learning of a smaller set of courses or modules or units, which are designed to provide learners with knowledge, skills, values and competencies in a narrow area of study and/or practice. However, the precise form of these MCs is still very much up for debate, with one approach proposing fully-open credentials which are transparent, and issuable by anyone, while another model proposes verified credentials which are issued by trusted institutions.

Accreditation for online learning or Massive Open Online Coursework provides challenges for universities to accept and acknowledge learning as credited coursework; awarding credit for different types of educational coursework disrupts higher education's traditional, formal educational processes for financial and educational accountability.

2 Introduction

2.1 The Scope of The Micro-Credential Users' Guide

The Micro-Credential Users' Guide (MC User's Guide) offers guidelines for implementing short learning programmes at institutional level and provides links to useful tools, such as the Open Education Passport and Credit Supplement and other supporting documents. The MC User's Guide takes into account recent developments of the European Credit Transfer and Accumulation System (ECTS) as a tool of the European Higher Education Area (EHEA) for making studies and courses more transparent and thus helping to enhance the flexibility and quality of higher education.

The MC User's Guide will equip Higher Education institutions to adequately adapt to the changes brought about modularisation of education; to improve the recognition and transfer of learning between different educational organizations as well as the world of work. This guidelines apply to any **MCs designed, developed and delivered by higher education institutions (HEI)**. It is of paramount importance that this document is read together with other quality assurance documents and policies issued by the National Qualifications Agency and other related agencies.

2.2 Historical Perspective

Micro-credentials, defined loosely as the outputs of short courses in education, are not a new phenomenon. For decades, short courses have been an essential part of adult education and have had a prominent role in continuing professional education in many professions. In diving instruction, vendor-led IT certification, and in medical continuing professional development, they are even the dominant form of education. Furthermore, the idea of 'unbundling' Higher Education into smaller parcels, functions and courses has been frequently mentioned in literature since at least 1975, while in European policy making the idea of offering short courses for reskilling has been present since at least 2001.

Fostering flexibility, transparency and better-quality assurance in the recognition of skills and/or qualifications, including those acquired through non-formal and informal learning, has been an EU policy priority since 2002 with the adoption of the Council Resolution on Lifelong Learning. Since then, the policy framework at both EU and national levels to support the development and implementation of flexible, lifelong re-skilling and upskilling pathways continues to evolve. It gained in importance in the context of the Europe 2020 Strategy and

2015 Joint Report of the Council and the Commission on the implementation of ET 2020. This report particularly states that a concrete issue is *"fostering transparency, quality assurance, validation and thereby recognition of skills and/or qualifications, including those acquired through digital, online and open learning resources, as well as non-formal and informal learning"*.

The emergence of Massive Open Online Courses (MOOCs) as well as self-paced corporate training platforms early this century has given educational providers the ability to produce online courses relatively cheaply for global audiences of thousands of learners. With 2012 famously having been declared 'The Year of the MOOC' by the New York Times, the years since have seen an inexorable growth in micro-credentialling globally at a blistering pace. According to ClassCentral, a MOOC tracker and provider, 2020 saw record investment in MOOCs, with approximately €750 million of funding leading to the production of 16300 courses by 950 university partners – followed by 180 million students. At the same time, LinkedIn Learning, the largest corporate e-learning provider globally, provided 0.5 million hours of video content to users in the first week of 2020, a trend that tripled to 1.7 million hours only four months later, brought about by the accelerated shift to digital as a result of COVID-19 related restrictions.

The latter part of the 2010s saw online digital learning providers combining (or *stacking*) several modules together into packages using various terms such as micro-masters, nano-degrees and specialisations. These *stacked micro-credentials* are specifically marketed as alternatives to degrees, intended to provide ready-for-market skillsets valued by employers, in a fraction of the time at much lower course than (typically) a master's qualification. By March 2020, the four largest providers were already offering over 600 of these courses.

Taken with the context of European policy making, these numbers show that the market is already responding to some of the main pillars of the European lifelong learning, adult learning and skills agenda policies – that of providing re-skilling and upskilling opportunities in skills which are related to new jobs, and that furthermore consumers and citizens are responding to these opportunities with enthusiasm.

These emerging educational providers are also leading to a new paradigm in educational provision – where platforms, which serve to commission, host and certify courses, use established educational providers as content-generators, and market courses directly to learners. Network effects lead to platforms becoming dominant providers in the industry, at the expense of the content providers. This phenomenon has already repeated itself in other content-based industries such as television and music, and is now continuing in education with Coursera, EdX, FutureLearn and LinkedIn Learning becoming global companies in their own right. Easy access to capital and a robust integration between academia and entrepreneurship has meant that all these top global brands are based in the US and UK, with Coursera launching an IPO on the New York Stock Exchange in March 2021[58]. While educational

providers based in Europe have provided content to the platforms, as of yet no top-five global learning platform is based in Europe.

In more recent years, micro-credentials have increasingly become a mainstream form of alternative education, with entire countries rolling out ‘education by micro-credential strategies’. Australia, Canada and Ireland have all rolled out strategies for publicly funded micro-credential marketplaces. Initiatives such as Indonesia’s ICE-T institute and India’s SWAYAM licence courses from the major MOOC providers to expand access to education. Initiatives such as the German government’s Atingi platform provide micro-credentials at scale as part of development cooperation in developing countries. With governments now getting involved, this can be seen as the next phase of micro-credential development globally.

2.3 European Policy Interventions

This focus on micro-credentials goes hand in hand with wider policy interventions also announced in the new Skills Agenda to improve opportunities for flexible learning - including for instance, the launch of a new initiative on individual learning accounts.

The proposal for a Council Recommendation on Vocational Education and Training (VET) for sustainable competitiveness, social fairness and resilience was announced in January 2020. It emphasises the need for flexibility and opportunities to progress within and between education and leading towards employability as key elements of future-fit VET systems. As part of this, the proposal reinforces the importance of modularisation - breaking vocational qualifications into smaller parts of learning outcomes to provide more flexible, customised content to the needs of individuals. It also recognises the role of validation of non-formal and informal learning and micro-credentials, supported by European Transparency tools in upskilling and reskilling and in supporting excellence in the internationalisation of VET.

The Council Conclusions on ‘Reskilling and upskilling as a basis for increasing sustainability and employability, in the context of supporting economic recovery and social cohesion’ was published in June 2020. It calls on Member States to *“boost lifelong learning policies in response to the technological and green transition and to promote and implement accessible, effective, flexible and work-related initiatives for individuals and employers to reskill and upskill the workforce”*. It promotes further diversification of the delivery of formal and non-formal education and training for adults, upskilling and reskilling initiatives, guidance and validation services, by further developing and establishing the relevant infrastructures and use of on-line provision as a complement and/or as an alternative to on-site provision of lifelong learning courses or activities. It further promotes a focus on digital skills and skills to adapt to transitions, including validation and transparency of learning outcomes.

The Communication on Achieving the European Education Area by 2025 references the importance of ensuring the "recognition and portability of short courses leading to micro-credentials", while also highlighting the instrumental role of the Europass in issuing authentic digital micro-credentials to students. The Digital Education Action Plan emphasises that micro-credentials which capture the learning outcomes of short-term learning can be harnessed along with digital technology to facilitate the provision of flexible, accessible learning opportunities, including for adult learners and professionals, helping them to re-skill, upskill or change careers.

Other strategic policy documents at the EU level emphasise the importance of flexible learning. Principal 1 of the 2017 European Pillar of Social Rights 'education, training and lifelong learning' endorses that 'flexible opportunities for learning and re-training (…) should be available at all times throughout a person's life and working career'. The accompanying action plan published in March 2021 further tresses that "innovative instruments like micro-credentials can facilitate flexible learning pathways and support workers on their job or during professional transitions."

Against the backdrop of needing to help European economies recover from COVID-19, and enhance resilience into the future, above mentioned global trends and policy documents set the stage for the European Commission to convene a consultative group and launch a European Approach to Micro-Credentials.

2.4 Looking ahead: toward a European approach to Micro-credentials

Organisations in Europe (such as EADTU), together with open universities and larger European MOOC providers have been working on a 'European model' of micro-credentials for well over a decade. Advances in educational recognition, such as credit systems and qualification frameworks, provide a basis for interoperability of different micro-credentialling frameworks. Trust and quality assurance systems, initially intended to promote student mobility between countries using schemes such as Erasmus, are easily applied to quality assure micro-credentials. These ideas have been explored in EU-funded projects such as OEPass, eSLP, MicroHE, and MicroBol.

Further, consortia of universities have joined together to offer 'European style' micro-credentials. The most significant initiatives here being the European MOOC Consortium's Common MicroCredential Framework as well as micro-credential frameworks being developed by European Universities, in particular the ECIU University 'Challenge Based Micro-Credentials' model.

Broadly speaking, the ‘European Approach’ promoted by these actors is characterised by:

- Offering course credit for completion of micro-credentials,
- Having high, transparent quality standards,
- Allowing for stacking and recognition across different levels and systems, and
- Including high degrees of public investment.

The work towards the European Approach on micro-credentials kicked off in Spring 2020 via the establishment of an ad-hoc consultation group with experts on higher education from various European countries to propose a shared definition of micro-credentials, characteristics of a common European Approach and a roadmap of actions. The report of the expert group was published in December 2020, and proposed a set of 10 building blocks to guide policy-making. The Commission plans to follow this up via a proposal for a Council Recommendation towards the end of 2021, into which the consultation which this tender addresses, will feed.

3 Definitions & Classification

Recommendation for Users

R1: Identify all short-learning experiences your institution may offer. Anything which is shorter than 30 ECTS qualifies as a micro-credential.

R2: Create a classification or typology of micro-credentials in your institution. Different micro-credential types are likely to have different lengths, quality assurance and levels of recognition.

R3: Harmonise your course prospectus using the typology, describing the full range of offerings from the smallest credential-type through to degrees.

There is as yet no universally agreed definition (or spelling) of ‘micro-credential’. A clear and unequivocal definition of micro-credentials is essential for informed discussion, and for adopting standards-based practices. A definition should be adapted and based on the International Standard Classification of Education (ISCED), the agreed framework used to report nationally comparable education statistics (UNESCO Institute for Statistics 2011). ISCED defines three main types of education:

• **formal:** education that is institutionalised, intentional and planned through public organisations and recognised private bodies, and – in their totality – constitute the formal education system of a country.

• **non-formal:** education that is institutionalised, intentional and planned by an education provider. The defining characteristic of non-formal education is that it is an addition, alternative and/or complement to formal education within the process of lifelong learning of individuals.

• **informal:** forms of learning that are intentional or deliberate but are not institutionalised.

With regard to the ISCED definitions, micro-credentials are quite often positioned within non-formal education because they are intentional and planned by a provider and yet 'an addition, alternative and/or complement to' formal education within the process of the lifelong learning. On the other hand, when they earn credit towards a formal qualification, micro-credentials stray into the territory of 'formal education'.

As a result of the discussions among the experts participating in the micro-credentials higher education consultation group, the definition of micro-credentials which is being proposed at EU level is:

> *"A micro-credential is a proof of the learning outcomes that a learner has acquired following a short learning experience. These learning outcomes have been assessed against transparent standards."*

It further specifies that "The proof is contained in a certified document that lists the name of the holder, the achieved learning outcomes, the assessment method, the awarding body and, where applicable, the qualifications framework level and the credits gained. Micro-credentials are owned by the learner, can be shared, are portable and may be combined into larger credentials or qualifications. They are under pinned by quality assurance following agreed standards"

The MicroBol project comes up with a similar definition which is more specific to Higher Education:

> *A micro-credential is a small volume of learning certified by a credential.*

It further specifies that "In the EHEA context, it can be offered by higher education institutions or recognised by them using recognition procedures in line with the Lisbon Recognition Convention or recognition of prior learning, where applicable. A micro-credential is designed to provide the learner with specific knowledge, skills or competences that respond to societal,

personal, cultural or labour market needs. Micro-credentials have explicitly defined learning outcomes at a QF-EHEA/NQF level, an indication of associated workload in ECTS credits, assessment methods and criteria, and are subject to quality assurance in line with the ESG"

3.1 Classifying Micro-Credentials

A review of micro-credentials offered by the major platforms such as LinkedIn Learning, Coursera, Atingi, Alison.com and EdX indicate that there are essentially three types of courses that lead towards micro-credentials. These tend to differ by size, complexity and degree of recognition. These include:

Skill-Credentials

'Skill credentials' are a new means of recognising and certifying peoples' skills, knowledge, capabilities and accomplishments, and allow learners to connect with recruiters and new opportunities. Micro-Skill credentials typically:

- involve 4-12 hours of learning
- are awarded within the context of non-formal education
- are not explicitly quality assured by external QA
- are linked to the acquisition of a specific competence

Gamrat, Bixler, & Raish (2016) describe four kinds of such skill-credentials:

1. Competency-based with simple binary outcome - either the learner did or did not demonstrate the competency.
2. Stratified micro-credentials are similar to traditional grading. Tiered credentials are awarded for attaining different levels of quality or performance (i.e., gold, silver, bronze, A, B, C or novice, proficient, expert).
3. Hierarchical micro-credentials, that reflect a progressive series of learning challenges or skills that build upon each other.
4. Meta-credentials and pathways guide learners along a complex or comprehensive learning path.

Open Badges are the most widely used inter-operable open standard for digital credentials. The standard was developed by the Mozilla Foundation and is now being maintained by the IMS Global Learning Consortium. Many Learning Management Systems, such as Moodle,

offer extensions to issue and share Open Badges via Mozilla Backpack, LinkedIn or Facebook (Peer 2 Peer University & The Mozilla Foundation, 2011; Priest, 2016).

Because badges are digital images with embedded meta-data, the exploration is usually initiated by clicking or touching the visual digital representation. The digital credential trend is rapidly being adopted in the labour marketplace, as leading global organizations like IBM, Microsoft, Oracle, AICPA, GED, AHIMA, and many others from various industry sectors have embraced open badges for their verified learning and professional credentials.

Micro-Credential Modules

Micro-credential modules are typically between 1-5 ECTS and are focused on academic skills. They often have been unbundled from degree programmes, and can be 'rebundled' to make up parts of other programmes. Micro-credential modules are often structured as MOOCs but not exclusively. They typically:

- represent 25-150 hours of learning
- are awarded within the context of formal education, and include options for assessment
- are often explicitly quality assured by external QA
- are linked to the acquisition of a set of academic learning outcomes

Short Learning Programmes (SLP)

Short Learning Programmes are the latest addition to the field of micro-credentials. The term is synonymous with micro-qualification, and represents the acquisition of academic competence via a bundle of courses. Such bundle of courses may be offered in two modalities:

- a set of 'module based' micro-credentials which may be taken independently but also may be stacked into a larger micro-credential;
- a set of courses which only exist as part of the short-learning programme

Such short-learning programmes are often linked to career stages, and can be used to access certain professions, or in continuing professional development scenarios. Thus, a short learning programme typically:

They typically:

- represents 150-1500 hours of learning
- are awarded within the context of formal education, and include options for assessment

- are always explicitly quality assured by external QA
- can be mapped to qualification frameworks, either as ‘partial qualifications’ or as a special category of micro-qualifications
- are linked to specific career progression goals

4 Vision, Mission and Strategy for MC’s at institutional level

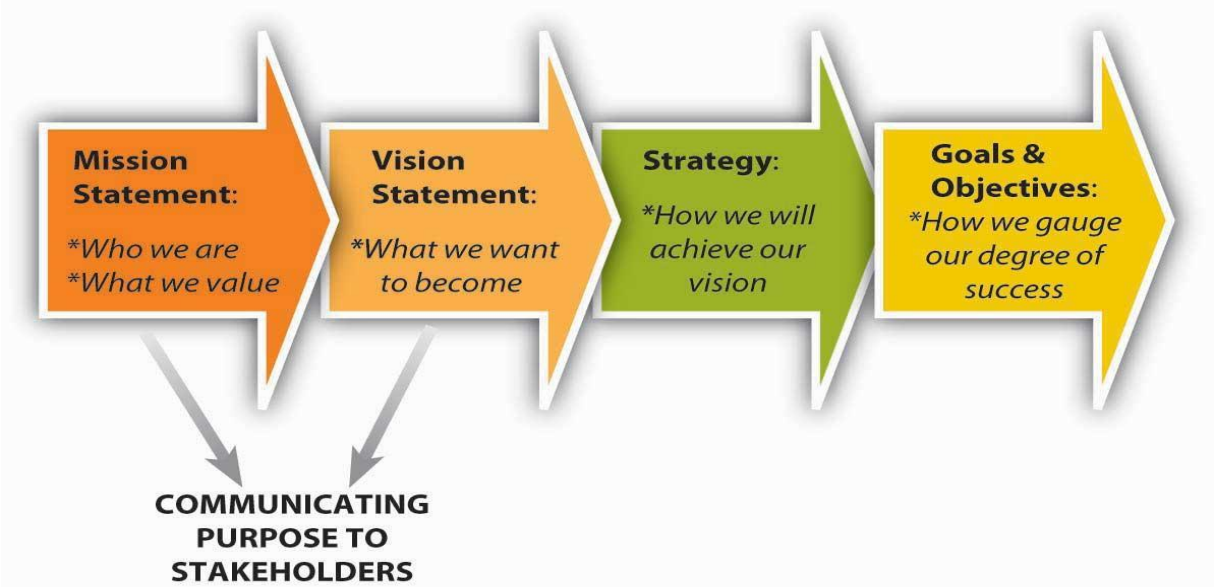
Recommendation for Users

R1: Identify how micro-credentials can contribute towards the overall mission, vision and strategy of your Higher Education Institution. In particular, identify the economic, social and environmental impacts they are likely to make.

R2: Create a bespoke mission, vision and strategy for your micro-credentialing programme, which is tied to your overall institutional goals, together with KPIs that allow you to measure the contribution micro-credentials make to your institution

4.1 Micro-credential Mission

The mission of HEIs will be changing from gatekeepers of knowledge to innovators and leaders of knowledge. Mission statements should describe potential opportunities for renewed policy, to enable campuses to more effectively support student access and success through micro-credentialing.



4.2 Micro-credential Vision

Example: *The [name of HEI] believe it is important to maintain a professional growth system which enhances student learning and supports educator practice. As part of this commitment, we believe a joint labour-management committee is the best vehicle to support a system-wide vision of professional learning that includes the design, implementation, and monitoring of ongoing, high quality professional learning based on student needs and system goals. Micro-credentialing is one important element of the [HEI] professional learning offerings.*

4.3 Micro-credential Strategy

The strategy will guide HEIs management through the decisions and tasks associated with planning, launching, and implementing a micro-credential pilot or initiative with a group of educators. Micro-credentials must reflect the HEI's commitments and objectives outlined in its Strategic Plan. The strategy will define how micro-credentials are offered by the HEI, faculty or an external institution and how it will be recognised for the purposes of admission and/or for the award of credit into qualifications. It will focus on the processes, procedures, and resources that are necessary to implement micro-credentials, as well as how the (multi-stakeholder) design teams operate, leading to creating theory and operational findings on how micro-credentials can be designed to ensure quality, sustainability, and stakeholder acceptance.

4.4 Micro-credential Goals & Objectives:

Part of the Strategic Plan for Micro-credentials is the reflecting of the goals and objectives for each stakeholder group in the strategic triangle – the learner, the HE institutions/ educator and the employer.

- understand the value proposition of micro-credentials
- envision the possibilities for micro-credentials in a unique context to the overall HEIs mission
- articulate goals and objectives for piloting or implementing micro-credentials
- promote, recruit, and prepare to launch the initiative
- determine HEI's theory of action for piloting or implementing micro-credentials

Proposals for new micro-credentials must be developed by the academic unit who will be responsible for maintaining the value and quality of the micro-credential. The academic unit must ensure that a summative student evaluation of all micro-credentials is undertaken the first time they are offered, and at least annually after that. All micro-credentials must be reviewed each year by the academic unit on the micro-credentials review template. The review will need to address whether the micro-credential is meeting its purpose, any issues raised in student evaluations, the ongoing appropriateness of teaching and learning methods and assessment, whether learning outcomes remain appropriate, and whether there is continued demonstrable support for the micro-credential from industry, employers or the community. Every faculty offering micro-credentials must submit a report to the Academic Programmes Committee each year confirming that the review(s) have taken place, and outlining any issues raised and steps taken or proposed to address them.

In this light, we make these additional recommendations as to design of micro-credentails:

R3: Micro-credentials should always be developed and approved according to local campus policies and procedures, consistent with campus mission and strategic goals.

Part of the power of micro-credentials is that they take advantage of local opportunities and local expertise. Campuses are encouraged to develop micro-credentials that serve their local constituencies, rather than appeal to a generic, standardized set of goals. Micro-

credentials should be developed with the needs of current students, but also of potential new students who may engage with them as part of Continuing Professional Education.

R4: Micro-credentials designed to meet market needs should be informed by current data from appropriate markets and align with relevant industry/sector standards.

The power of micro-credentials—open digital badges, in particular—is in their ability to easily showcase to employers the skills and competencies of applicants. Recommendations aligned to specific market needs and data regarding those needs and industry standards should be incorporated into micro-credential planning and development.

R5: Micro-credentials should be developed with partners from outside academia wherever possible.

Because micro-credentials are intended to highlight specific skills and competencies, they should be created with substantial input from industry partners and other employers whenever possible. These might include meeting with representatives of business and industry and soliciting initial ideas from local employers. Micro-credentials are most successful when they are reflections of academy-industry partnerships.

R6: Micro-credentials should be used to increase flexibility and innovation

As they are smaller-scale than full degrees, micro-credentials have fewer standardized requirements. Thus, micro-credentials often more easily lend themselves to innovation. Micro-credentials may lead to creation of new, creative courses and programs. They can meet market needs with responsiveness, agility, and dexterity. Micro-credentials can take advantage of unique partnerships and technology.

5 Awarding Micro-Credentials

Recommendation for Users

R1: Award micro-credentials in a digital and signed format, preferably as Europass Digital Credentials.

R2: To enhance recognition, including a rich set of meta-data in the credentials as described by the MicroHE 'credit supplement'.

During 2020 the European Commission launched the Europass Digital Credentials through which micro-credentials can be issued in the EDC format developed for this purpose, stored and verified by third parties. The EDC format is an extension of the international standard for "Verifiable Credentials" published by the World Wide Web Consortium (W3C) in 2019. With the latter it is fundamentally compatible, but includes several additional fields specific to Digital Credentials in education. Only qualified electronic seals as defined by the EU eIDAS Regulation may be used for the signature of the issuing institution. Only then is the issued EDC legally valid and equivalent to a handwritten document throughout the EU. The integrity of the seal and thus the DC is checked during its validation in one of six defined steps. Where legal validity of credentials is not a formal requirement, the credentify portal developed by the MicroHE project provides an excellent issuing ecosystem for micro-credentials.

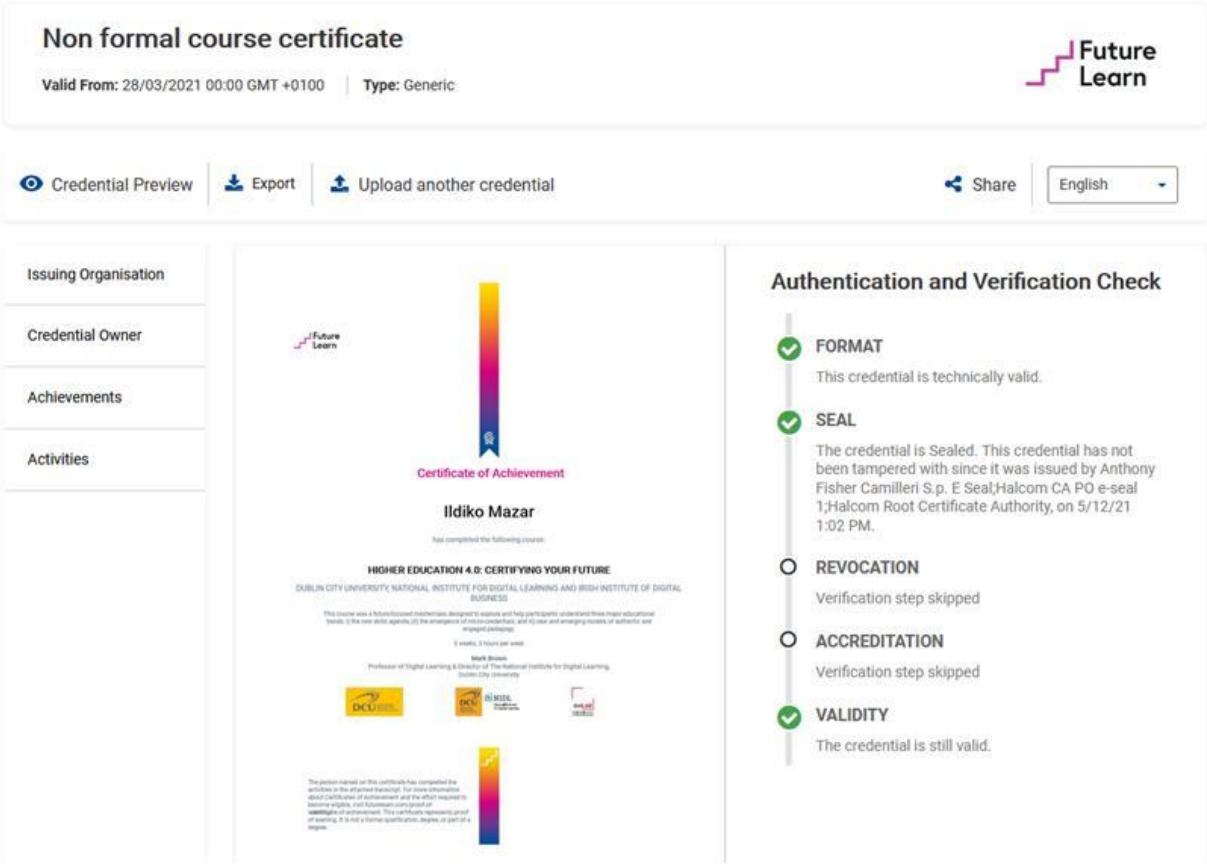


Figure 1: Example of a Europass Digital (Micro) Credential

The MC credit supplement is designed as an aid to support the recognition of micro-credentials and short learning programmes. MC credit supplement is an important tool of the European Higher Education Area for graduates to ensure that their non-degrees credentials are also recognised by higher education institutions, public authorities and employers in their home countries and abroad. It offers a detailed description of the SLP studies completed and provides an indication of the competences acquired to complete the programme. It improves the visibility of institutions, both by other higher education institutions and employers.

The MC credit supplement also helps safeguard the institutional autonomy of higher education institutions by providing a common framework for the recognition of micro-credentials and helps to reduce the administrative burden faced by many institutions.

The MC credit supplement contains eight sections providing information regarding:

- the holder of the qualification (non-degree credentials)
- the micro-credential type and its originating institution

- the content of the course and results gained
- function of the micro-credential type
- certification of the supplement
- details of the national higher education system concerned
- other relevant details

The EU Approach to micro-credentials defines a similar approach, recommending that all micro-credentials should include the following properties:

- Identification of the learner
- Title of the micro-credential
- Country/region of the issuer
- Awarding body
- Date of issuing
- Notional workload needed to achieve the learning outcomes (in ECTS, wherever possible)
- Level (and cycle, if applicable) of the learning experience leading to the micro-credential (EQF and/or national qualifications framework;
- Overarching Framework of Qualifications of the European Education Area) > Learning outcomes
- Form of participation in the learning activity (online, onsite or blended, volunteering, work experience)
- Prerequisites* needed to enrol in the learning activity
- Type of assessment (testing, application of a skill, portfolio, recognition of prior learning, etc.)
- Supervision and identity verification during assessment* (unsupervised with no identity verification, supervised with no identity verification, supervised online or onsite with identity verification)
- Quality assurance of the credential and, where relevant, of the learning content

6 Academic recognition & portability of micro-credentials

Recommendation for Users

R1: An institutional micro-credentialling strategy should not only address the provision of micro-credentials but also the recognition of micro-credentials.

R2: Micro-credentials should stack toward a registered certificate or degree. Stackable credentials are part of a sequence of credentials that can be accumulated over time to build up an individual's qualifications and help that individual move along a career pathway and further education

R3: The recognition methodology used for micro-credentials should take the quality assurance policies of the institution and the region/country into account, and where possible recognise other QA systems, to avoid multiple QA processes being applied to the same micro-credential.

R4: Recognition of non-formal learning should not be the default recognition strategy for micro-credentials. It is time consuming and expensive to implement, especially at scale. This should be saved for edge cases that cannot be covered by other recognition procedures.

The degrees from accredited higher education institutions (HEIs) like bachelor or master degrees consist of the gold standard in terms of their reputation, recognition and portability, no clear set of comprehensive criteria exists to assess the quality of micro-credentials. This said, in today's highly competitive global market, both employers and potential employees are looking for any advantage they can find to give them an edge on their competition. As a result, micro-credentialing programs have seen a dramatic increase in popularity over the last few years, a trend that is projected to continue for both stakeholder groups.

HEIs are playing a major role in the recognition of learning and trustworthiness. The key question is : How to communicate the entirety of the education experience in a way that is useful to students and employers? The student learning portfolio must signify the duality of the learning experience, both inside and outside the classroom.

Employers are increasingly questioning whether the macro-credentials, such as bachelor and master degrees, remains a signal of job readiness in an era when more adults have degrees and fewer of them graduate with the soft skills needed in the workplace. The disconnect between what employers want and what the degree communicates grows ever wider. Today, employers of all kinds and sizes are searching for additional signals beyond traditional degrees to evaluate job candidates. Employers remain the critical player in the setting of academic qualifications for jobs. Without a credentialing system that is understandable, trustworthy, and verifiable, employers will continue to rely on the markers they have historically used.

Micro-credentials are flexibly addressing skills gaps and offer cost-effective response to meeting rapidly changing workplace training needs, a flexible curriculum redesign with long accreditation phases cannot show. In that way micro-credentials form a valuable part of new style work 'portfolios'. MCs can be used as a dynamic response to local priorities and labour market needs – helping to streamline processes of upskilling, while making progress more tangible. Individuals gain valuable micro-credentials that demonstrate their learning, while managers and organisations can better measure the impact of workforce development activity.

Within this environment, we see several emerging forms of provision and recognition models for micro-credentailling within Higher Education, namely:

6.1 Micro-Credentials for Credit Transfer

Under this model, Higher Education Institutions think of micro-credentials as a kind of 'virtual Erasmus' – extensions of existing study programmes with modules taken at other institutions. Typically, under this model, an institution will extend its 'optional credit' list in a specific programme, with a handful of micro-credentials offered by other institutions. Typically, the institution will have some kind of agreement with the other institutions, governing their use of their micro-credentials, as well as recognising their quality for the purpose of awarding credit at the home institution. The micro-credentials offered under this model are always credit bearing, and while they may be *offered* as separate micro-modules, they are only recognised through this more restricted procedure.

Institutions will tend to use such a module to either offer international perspectives on studies, or to supplement programmes with specialist knowledge not available in house.

6.2 Joint Offers

A more extreme version of the 'credit transfer' model, here a consortium of institutions will cooperate to offer a portfolio of micro-credentials which may lead to a micro, partial or full qualification. The relations between the institutions are again managed by a contract, and the

qualification is typically jointly issued by all institutions which are participating. The qualification will usually need to be quality assured by the quality assurance agency in each of the participating countries, creating quite some administrative overhead. Each institution recognises all the micro-credentials, as well as the resulting qualification, as if it was their own.

6.3 Clearinghouse Model

To avoid the very significant bureaucracy around joint offers, the clearinghouse uses a central organisation/entity, such as a MOOC platform, to enroll students, host the courses, combine micro-credentials into programmes and award the micro-credentials. By allowing the clearinghouse to mediate the recognition of credentials between institutions, as well as centralising the offer, it reduces the need for bilateral or multilateral agreements between institutions. In terms of quality assurance, micro-credentials would still need to be quality assured by the internal QA of the systems producing them, but in terms of external QA, only the clearinghouse would require an independent review, significantly simplifying operations. Ideally a clearinghouse would also have its offerings mapped to a NQF/EQF, thus further improving recognition.

6.4 National Qualification Frameworks

Under this model, national qualification frameworks would explicitly recognise forms of micro-credentials as qualifications. By doing so, they would achieve the recognition status of qualifications, being recognised by default within the jurisdiction, and being easily translatable by ENIC/NARIC centres into local qualifications for the purposes of portability. Micro-credentials mapped to NQFs would effectively have the recognition status of ‘mini-degrees’, and could be used for purposes of admission and progression in Higher Education.

6.5 Recognition of Non-Formal Learning

Under the non-formal learning route, institutions give no special status to micro-credentials awarded from other institutions, nor do they recognise the assessments and certificates awarded by said institutions. If students want to get their learning recognised, they need to have the learning newly assessed by their HEI, via a test provided by a specialist assessor. Such test will determine the level of competence held by the student, as well as equivalency to similar courses within the institution. Students are then considered to have taken the equivalent courses within the HEI.

7 Accreditation & Quality Assurance

Recommendation for Users

R1: The exiting quality assurance structure of HEIs should easily be applied to micro-credentials.

R2: Institutions should explicitly include micro-credentials within their existing QA policies, and apply all the same procedures in terms of course design, review and evaluation to micro-credentials as applied to their main offering. Micro-credentials should never follow a separate 'quality track' within the institution.

R3: Micro-providers who are offering 'higher education-level' micro-credentials should have their offers mapped to the NQF where possible, and should attempt to be accredited as Higher Education Institutions. Where this is not possible, they should align with the principles of the ESG, and arrange for an external audit with a competent quality assurance body.

7.1 Quality Assurance

Given the many different types of micro-credentials, it follows that the **quality assurance arrangements (QA) are diverse,** as well, encompassing **national QA systems**, **international QA recognized systems** (e.g., ISO quality standards or excellence awards like EFQM) and **own systems**, mainly major companies having their own training centres and/or programmes.

Quality Assurance, as understood by Annexe IV of the EQF, and reinforced by the European Standards and Guidelines for Quality Assurance in Higher Education (ESG) as well as ISO 9000 family standards, is understood to cover four categories of processes. The first is the internal quality culture or **quality assurance policy of an organisation**, which translates into use of quality in everyday operations of the institution. This is reinforced via procedures for **internal review**, which provide internal checkpoints to identify and resolve issues with quality management. These internal reviews should be complemented by **external reviews**, conducted by independent organisations who assess the internal quality management system against a set of agreed standards. Finally, these independent organisations should themselves be quality assured to ensure their **independence and correct application** of these standards.

QA of micro-credentials needs to help institutions **focus on 'here and now',** on the immediate needs for upskilling and reskilling – of employers (to cope the market needs in delivering new / better products and services) and of learners (mainly adult learners trying to find better jobs or to secure the existing ones). In this regard, the access requirements, the provision itself (work-based learning arrangements included) and counselling and guidance have some specific characteristics with respect to micro-credentials.

Micro-credentials raise more challenges regarding **data collection** and the **indicators** used for quality assurance purposes, at system level but, mainly, at provider level. Another challenge is **ensuring continuity, from the lifelong learning perspective**, and progress in career, by avoiding 'dead end jobs', that may be induced by targeting narrow / ultra-specialized skills.

For instance, to cope with the diversity of provision conditions and contexts, it is very difficult to define the **qualifications** provided, based on common occupational or training standards, to establish **common curriculum arrangements** (learning outcomes, contents, infrastructure and teaching aids needed), **common requirements for trainers / mentors** (mainly, for the ones provided by companies) or **common accreditation procedures** for CVET providers. It seems, in this regard, that '**flexibility' and 'adaptability' to the business requirements are the key words**.

Many micro-credential providers are themselves small in scale and, **a lot of them, operating in market conditions**, **may not have the capacity to implement** complex and sophisticated QA processes, developed at system level. This is exacerbated by lack of management and personnel with **QA-related competences,** often leading to a need to hire consultants to implement quality systems. Moreover, the system level requirements (for instance, the national quality standards) may be different with the requirements of the international or sectoral quality requirements (see below, point 2.2, for some examples).

From a consumer/learner information standpoint there is **poor understanding** of which quality labels apply to micro-credentials and their meaning. While certain industry-specific certifications have high visibility, at a more generic level it is **extremely difficult for users to receive reliable, independent information** as to the quality of a course leading to micro-credential, or the reputation of a provider. Within online micro-credential platforms platforms such as alison.com or LinkedIn Learning, the main indicator for quality in terms of transparency is user 'star' ratings.

In the last decades, driven by the **trans-national, global, character of their activity**, beside the international models described above, some important companies and international professional associations developed their own qualifications which are offered via networks of international franchisees. To ensure the quality standards of such franchisees, they developed

quality systems / quality labels, which enjoy an increasing recognition, at national and sector level. For instance (among many other examples):

- Mercedes offers its 'drive' programme, working with accredited institutions around the globe to certify technicians with 6 months on-the-job training at a Mercedes dealership
- Microsoft Learn, offers training and professional certification for qualifications in software development and use.
- The PADI Quality Management Program controls the quality of all practically all diving education and diving centres globally.

While these types of quality labels provide for quality assurance of the schools offering the qualifications, the QA/Accreditation bodies are usually not themselves quality assured against agreed standard.

While for 'independently offered' modules quality assurance offers a challenge, for credentials unbundled from Higher Education degrees, the existing quality assurance arrangements are likely to be considered adequate and not require further procedures. On the other hand, with respect to new courses leading to micro-credentials that come from Higher Education Institutions, the ESGs clearly state that quality assurance should be applied to "departments, schools, faculties and other organisational units as well as those of institutional leadership, individual staff members and students to take on their responsibilities in quality assurance", and furthermore covering "any elements of an institution's activities that are subcontracted to or carried out by other parties". These two guidelines taken together make it clear that even if micro-credentials are offered by a separate department/unit, all the existing quality assurance infrastructure should be applied to them.

7.2 Role of Qualification Frameworks

There is no European or National recognition system for many course offerings, although that may change as entire degrees move online, raising the question of whether micro-credentials need to be covered by the European Qualification Framework (EQF), which accredits traditional study options. In most countries, only short learning programmes and modules taken out of an accredited degree programme would have some form of accreditation.

In higher education **accreditation** is a type of **quality assurance process** under which programs are evaluated by an external body to determine if applicable standards are met. If standards are met, accredited status is granted by the agency.

However, micro-credentials are not currently quality assured under any government-approved standards, nor accredited by a regulator. To be considered for inclusion in the EQF, micro-credentials would need to demonstrate that a reliable form of assessment was undertaken. An existing agency, or one established for the purpose, could be given the task of assigning individual micro-credentials to an EQF level. This approach is currently being employed in Ireland & New Zealand.

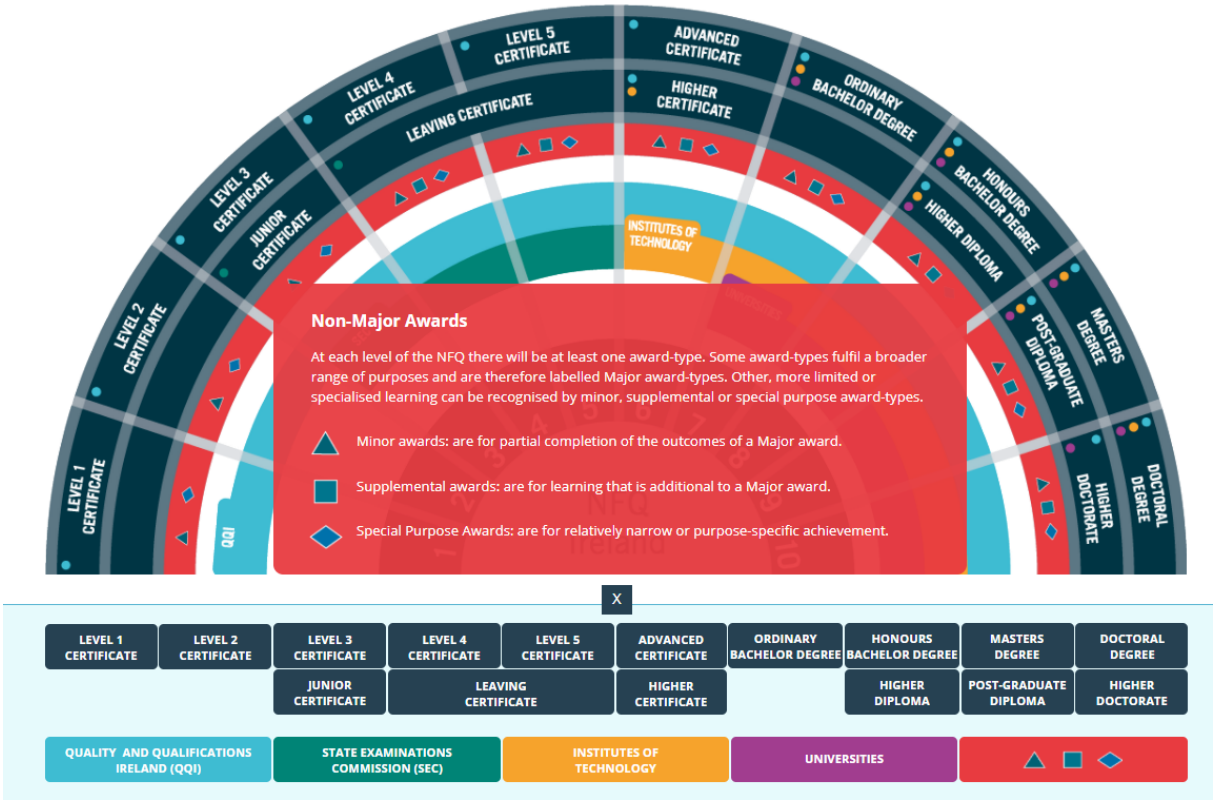


Figure 2: Micro-Credentials in the Irish Qualifications Framework

The main objective of MicroHE was to provide a comprehensive policy analysis of the impact of modularisation, unbundling and micro-credentialing in European Higher Education. To achieve its goals the project conducted the following activities:

- gathering the state of the art in micro-credentialing in European Higher Education today, by organising the first European survey on micro-credentials in HE, surveying institutions across the continent, with the aim of understanding the current level of provision, the types of micro-credentials offered and future trends in provision of micro-credentials
- forecasting the impacts of continued modularisation of Higher Education on HE Institutions by using forward-scanning techniques, specifically through the use of DELPHI methodology
- examining the adequacy of European recognition instruments for micro-credentials, in particular ECTS, the diploma supplement and qualification frameworks
- proposing a 'credit supplement' to give detailed information about micro-credentials in a way compatible with ECTS, the diploma supplement and qualification frameworks
- proposing a meta-data standard and developing an online clearinghouse to facilitate recognition, transfer and portability of micro-credentials in Europe.

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