A Micro-Credential Roadmap:
Currency, Cohesion and Consistency

MARCH 2021

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Foreword

The New Different: New World of Workforce Development

Many of the major changes that we have experienced due to the impact of Covid-19 had their origins in developments that long predate the pandemic. Globalisation, matrix management structures and digital transformation have had significant impacts on how we work, where we work and especially to whom we report. The pandemic, however, has greatly accelerated these changes and we are now experiencing greater organisational changes than at any period during the last century.

If we, the workforce development community, are to continue to contribute significantly to the economic development of our society, then we must adapt quickly to the new economic environment. Trying to anticipate what the new different will look like, is a very difficult and time-consuming exercise. What we do know is that to thrive in the new business environment, support organisations must be as flexible as possible in every aspect of their service delivery.

This study a is perfect example of the new flexibility in action. Micro-Credentials are a critical component in deploying the learning programmes of the future. Skillnet Ireland is to be commended for sponsoring the research programme undertaken by the five Skillnet Networks associated with this Report: Aviation Skillnet, ICBE Advanced Productivity Skillnet, ICBE Business Excellence Skillnet, Galway Executive Skillnet and Taste4Success Skillnet. Professor Mark Brown, Director, National Institute for Digital Learning (NIDL), Dublin City University (DCU) and his team have produced an excellent report.

Finally, Skillnet Ireland is perfectly positioned to provide the flexibility required to thrive in the new different. The key strengths of Skillnet Ireland are the diversity, autonomy and flexibility of its 70 business networks. We, for our part, are determined to implement the recommendations included in this report.

On behalf of the five Skillnet Networks associated with this study,

Professor Eamonn Murphy (Emeritus)
Managing Director
Irish Centre for Business Excellence (ICBE)

Executive Summary

Micro-Credentials provide a unique mechanism by which Ireland can recognise and develop the work-based learning of employees to support both reskilling and upskilling as well as lifelong learning. Skillnet Ireland networks and their constituent member organisations are well positioned as key actors in the Micro-Credential eco-system to influence and drive the roll-out and development of national mechanisms to support a Micro-Credential approach to industry-focused applied learning. In order to meet the challenges involved in successfully implementing a robust and accelerated process to validate industry-based learning, a holistic system-wide perspective will be required.

Building on Ireland's position as an open, industry-supportive economy with a highly educated and skilled population, Ireland can become a global leader and provider of Micro-Credentials for work based and applied learning. To ensure our leadership in this space, a multi-stakeholder approach with engagement from national agencies, industry, education and training providers, and employer and employee skill development networks is essential for this to become a reality. The roadmap as set out in this report highlights the key priorities and steps needed, along with the presentation of the findings from the first National Micro-Credential Survey of Employers and Employees undertaken in Ireland. The principal recommendations and next steps to realise the ambition of establishing robust and responsive mechanisms to engage with work-based learning across sectors include:

i) awareness building and collaboration amongst stakeholders,
ii) capability and competency mapping within organisations, and
iii) the funding and piloting of scalable and rapid models of validation and assessment of work-based learning in key sectors.

Awareness Building & Collaboration	• Promote national dialogue and sectoral participation in education activities to mature the current level of awareness, understanding and potential of Micro-Credentials i.e. recognition of work-based/ experiential learning and life-wide learning across the system. • Promote and fund collaboration and dissemination of Micro-Credential development and delivery within and across sectors to build a stronger culture of partnership between industry, professional & employee bodies, training and higher education providers. • Align with national and international definitions, standards and frameworks pertaining to Micro-Credentials to ensure their currency and wider recognition as valid assessed training and professional development. • Create a National Steering Group comprising of the breadth of stakeholders to create a national strategy and to oversee future developments and funding with a remit to monitor and promote a coherent national response to EU/global initiatives (drawing on regional & industry strengths) regarding Micro-Credentials with the specific aim to position Ireland as an international hub of excellence and delivery in this space.
Capability & Competency Mapping	• Completion of capability mapping of current CPD provision within Skillnet organisations to help recognise where Micro-Credentials might support a more agile, flexible and stackable approach to training and professional development.
Funding and Piloting	• National funding to support further and in-depth research on sector-wide pilots in Skillnet Networks in tandem with other key stakeholders from the validation of training and education sector to develop and implement rapid, scalable processes to validate and assess work-based learning. • Piloting of models of co-design, co-development and co-delivery of Micro-Credentials with trusted educational providers and Skillnet Networks and members so that better evidence can be gathered and valuable lessons learnt about the potential and actual benefits for all stakeholders, building on previous initiatives in the AgriFood, Food and Skills Connect space.

Introduction

Micro-Credentials are defined in this report as smaller units of assessed learning recognised by higher education institutions and other trusted credential-bearing agencies or professional bodies. They are seen by many to address the growing demands of upskilling and re-skilling required by both industry and employees. Although still an emerging area, when well-conceptualised they provide many benefits to learners such as short lead-in times to certification, flexibility in learning, and skill provision in new and emerging areas. Credentialed short learning opportunities are also identified as having the potential to address the challenges faced by employers and employees due to the impacts of increasing automation, technological reskilling, and other major societal changes.

This report provides a roadmap of recommendations, informed by feasibility research conducted by the National Institute of Digital Learning (NIDL) in conjunction with the Irish Institute of Digital Business in Dublin City University (DCU) in collaboration with a consortium of five Skillnet Networks: Aviation Skillnet, ICBE Advanced Productivity Skillnet, ICBE Business Excellence Skillnet, Galway Executive Skillnet, and Taste4Success Skillnet. Preceding research includes the publication of an insights report, "Micro-Credentials: An Evolving Ecosystem"; the delivery of two Micro-Credential webinars with national and international experts, "Certifying Your Future: Making Sense of Micro-Credentials" and "Global voices on Micro-Credentials: What's next for industry in Ireland?"; and the implementation of the first National Micro-Credential Survey conducted among Irish employers and employees.

This report is timely as national and international initiatives such as the European Commission's new Skills Agenda for Europe (European Commission, 2020), identify Micro-Credentials as key building blocks in response to the challenge of developing 21st Century transversal skills and promoting new life-long and life-wide learning pathways. Recently, the European Commission has developed a dedicated website discussing the core questions regarding Micro-Credentials. Indeed, the Skillnet Ireland Statement of Strategy 2021-2025 (2020:15) is also reflective of these trends to support "people development" across sectors, through a Micro-Credential approach:

Make lifelong learning more accessible with the adoption of Micro-Credentialing and digital badge technology, designed through collaborations between enterprise and the education sector.

- Skillnet Ireland Statement of Strategy 2021-2025 Transforming Business Through Talent

There is growing recognition that the credential system which served the needs of previous centuries needs to evolve to adequately prepare citizens and work-ready learners for the requirements of Industry 4.0 and life in the 21st century.

Adopting smaller forms of credentialed learning (such as Micro-Credentials), when embedded in a coherent framework, may deliver more flexible, stackable and transformative learning experiences for both employees and employers. The recommendations as set out in this report, supported by the findings of the national survey, indicate that maturing stakeholder understanding of Micro-Credentials, set against the wider European context, is crucial to developing a future roadmap for Ireland.

Towards a Roadmap -
Why, Who and How?

In mapping and constructing a Roadmap, this report's recommendations address three core questions: Why?, Who? and How? of Micro-Credentials. This approach intends to facilitate and scaffold internal conversations across Skillnet Networks as the potential and impact of Micro-Credentials is considered.

Figure 1. Key questions addressed by roadmap

WHY	WHO	HOW
Why do Micro-Credentials make sense for you?	Who do you need to engage?	How can Micro-Credentials work for you?
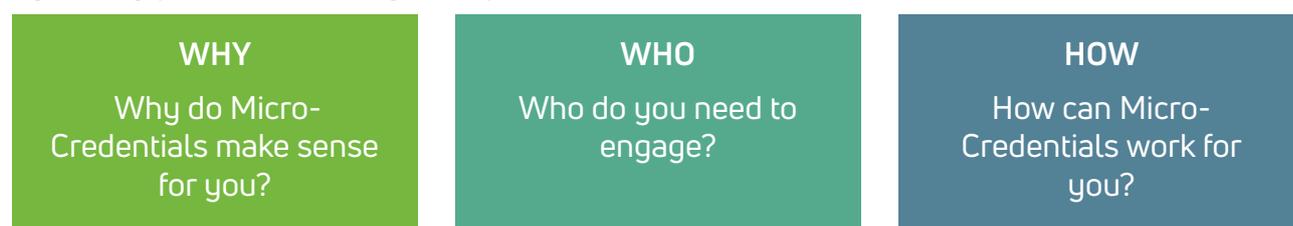
The recommendations in this report are underpinned by the importance of Currency, Cohesion and Consistency. These "3Cs" are intended to support Skillnet network members, industry and the wider Irish training and education community, in considering how to ensure any future investment in Micro-Credentials is scalable, sustainable and ultimately successful. It is also important to note that the transformative potential of Micro-Credentials depends on a compendium of interacting factors. Importantly, Micro-Credentials by themselves should not be seen as the panacea for all Learning and Development needs, but they can play an important role in building a more flexible and responsive training and education system in Ireland. Realising this potential requires serious engagement with a wide range of stakeholders to help mature understandings and build consensus towards a common approach to Micro-Credentials set against the National Qualification Framework. Therefore, across the recommendations, a particular emphasis is placed on "being in the conversation and network".

With the emergence of new approaches for formalising and recognising learning within workplaces, there is an inherent and real risk that organisations will not be able to make sense of what a Micro-Credential is. As a leading educator working in the area states:

We need to give employers the cues they need to make sense of them…
and also how to sort the wheat from the chaff.

- Beverley Oliver, Professor Emeritus, Deakin University (2020).

The future of Micro-Credentials is currently being debated by a range of bodies at national, European, and indeed global levels. These debates include wider issues such as:

• The types of skills-knowledge which can be recognised;
• Whether portable but robust global standards are required and should be put in place;
• Who should, and can, assess and quality assure Micro-Credential learning opportunities.

The above does not imply, however, that increasing standardisation is not occurring. On the contrary, initiatives such as the European MOOC platform's "Common Micro-Credential Framework" and the European Commission funded MICROBOL project point to an iterative, but purpose-driven approach, in which common definitions, standards and frameworks are being developed by stakeholders. Some countries such as Australia and New Zealand have already committed to aligning Micro-Credentials within their national qualification frameworks.

These trends are intensifying at pace, partly fuelled by government efforts to increase employment and help businesses recover from the current Covid-19 crisis. Therefore, remaining aware of, and linking into national and international developments during these uncertain and challenging times is an important prerequisite for any roadmap at a sectoral and national level. It is crucial that a roadmap creates trans-national, stackable and portable validations of learning, for 21st century skills and competencies, which further advances Ireland's National Skills Strategy 2025.

Why Micro-Credentials?

Micro-Credentials present an important opportunity for industry. The workplace is clearly an important learning environment but formal recognition and validation of learning 'on-the-job' remain problematic. These processes are difficult to scale, time-consuming and bureaucratic, and have traditionally focused on evaluating larger qualifications gained through formal education rather than smaller and more job-specific competencies and skills. Micro-Credentials present a potential solution to training validation needs but organisations must have clearly defined goals as to why Micro-Credentials make strategic, operational and developmental sense in their context. Fundamental questions to be addressed at an organisational level include:

1. How could Micro-Credentials fit/enhance existing Continuing Professional Development (CPD) programmes and offerings?
2. How could Micro-Credentials provide current/future employees with a valid and robust recognition of workplace learning that promotes further development?
3. How could Micro-Credentials as part of a flexible CPD programme help to enhance recruitment, employee retention and longer-term productivity?

There are many drivers underlying the Micro-Credentialing movement, as outlined in the paper "Micro-Credentials: An Evolving Ecosystem". To have true value, a Micro-Credential must be, above all else, clearly-understood, and serve as a recognised representation of valued qualities, progress and skills, for both employers, and employees. The results of the national survey, for example, highlighted that for employers, great value is placed upon using CPD as a means of developing a productive workplace culture, and of recognising the efforts of their staff in a meaningful way. Employees appear similarly eager to validate their understandings, learn employment-relevant skills, and remain abreast of new developments within their field. These trends speak to an openness to further learning and further enrichment of professional practice.

Micro-Credentials afford organisations the opportunity to zero-in on the development and recognition of role-specific competencies within their organisations.

- (Professor Mairéad Nic Giolla Mhichíl, National Institute for Digital Learning, 2020)

There has been an upsurge globally of learners engaged in learning during the Covid-19 pandemic, with all of the major Micro-Credentialing/Massive Open Online Course (MOOC) platform providers reporting significant increases in learner numbers, whether through furlough arrangements with employers or to access new sectors. Thus, online CPD has become widely accepted and valued by both employers and employees. Gallagher (2016:49) points to the gap and opportunity that Micro-Credentials might fill for some workplaces:

> *"For many employers, degrees appear to be most valuable in the early part of a professional's career, when candidates lack a significant amount of professional experience and quantifiable results. In the middle and later stages of an individual's career, a candidate's potential value and productivity can be better assessed based on that person's track record, regardless of educational level."*

However, conceptual clarity as to what exactly Micro-Credentials are remains critical. At present an understanding, regarded as a common currency, with clear value, and identified, accepted standards, across a range of industry, educational and professional bodies is lacking. Accordingly, a broad, national-oriented framework, with trusted collaborators, a coherent strategy, and well-defined standards, is crucial to the future road ahead, to ensure a high level of currency.

The alternative path, of ad-hoc, individualised, industry developed, sectoral and fragmented forms of credentialing, with no clear relation to alternative, perhaps competing recognition frameworks, should be avoided by organisations. Although forms of these initiatives do exist in Ireland and elsewhere, they can be extremely problematic, not only in terms of the organisation/employer who adopts them, but potentially for the employee who may not recognise such initiatives as valid forms of learning in the wider marketplace. "Warm body" credentials[1], as they are often referred to, unfortunately are viewed by many as having the potential to undermine the status, credibility and reputation of credit-bearing and assessed qualifications such as Micro-Credentials and more traditional macro-credentials.

Indications from pan-national organisations (e.g. the European Commission) as well as national qualification agencies indicate that they wish to strengthen key components such as "trusted providers", "quality assurance", "assessment", and "technological infrastructures" to underpin the concept of Micro-Credentials to avoid such criticisms. However, many employers and training networks such as Skillnet Ireland already possess mature and nuanced CPD programmes which may form a solid base for further development in tandem with education and training providers.

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1   Warm-body generally refers to the notion of an individual receiving an award, badge or credit for being in attendance.

As noted by one of our leading international advisors:

You may have an array of things that may or may not integrate and work together at this point. But if you start with that idea of a capability map and you align all your current offerings across that map, you could recreate what you already have and make it into something that is in stackable blocks.

- Beverley Oliver, Professor Emeritus, Deakin University (2020)

The question of integration, mapping, and the leveraging of existing learning and training provision in organisations, is highly-relevant, and understanding how the new might fit alongside the old is consequently critical in answering why adopting a Micro-Credential approach is aligned with an organisation's strategy. In this respect, organisations need to play an important "middle-out" role in the development of a roadmap which serves both national interests and the future needs of employees. Many education providers have engaged with Skillnet Networks to co-construct curriculum and to validate experiential learning. Institutions in higher education for example, operate validation schemes of learning outcomes, based on an assessment of evidenced learning.

Learning Outcomes
Learning outcomes are carefully crafted statements of what a learner will be able to do after completing a learning activity (seminar, course, workshop etc.) They specifically describe the knowledge/skills and/or expertise that the learner will be able to demonstrate and to what level ranging from novice to full mastery.

Learning outcomes form the basis for the recognition of learning, independent of the site of learning, and represent an international currency, used extensively both nationally and internationally within education and training. The European Credit Transfer System or ECTS, is based on learning outcomes, as is the Irish Framework of Qualifications and the European Qualifications Framework. Learning outcomes translate into ECTS credits which quantify the workload associated with completing a learning activity such as a course, module, degree etc. ECTS and other similar systems are used internationally to support the recognition of assessed and validated learning. It is envisaged that Micro-Credentials will draw on both learning outcomes and ECTS in the European context. Industry-developed Micro-Credentials, therefore, to have wider relevance beyond a specific

industry or employment setting, will need to demonstrate an understanding of the application and demonstration of learning outcomes and ECTS, the assessment of learning outcomes and the recognition of learning outcomes from other organisations. For many SMEs, and indeed larger organisations, this will stretch their internal resource capacity, and ultimately may not align with their strategic objectives. Leveraging partnerships, therefore, with institutions experienced in the construction of learning activities, assessment and validation of learning provides a realistic and forward-focused approach to develop work-focused learning through Micro-Credentials.

The challenge for this partnership to work is to develop scalable processes and infrastructure to support such initiatives. It is also important to note that Micro-Credentials can be more than purely seen as vocational training or the recognition of work-based training.

Micro-Credentials **support both life-wide and lifelong learning.**

- (Professor Mairéad Nic Giolla Mhichíl, NIDL, 2020)

Why is this important? We know that transversal skills are in demand across industries.

Transversal Skills
Skills that are typically considered as not specifically related to a particular job, task, academic discipline or area of knowledge and that can be used in a wide variety of situations and work settings. Source: UNESCO IBE 2013, Global[2]

Professional bodies such as Engineers Ireland include transversal skills as key components of professional recognition. Training opportunities offered by Skillnet Networks provide further opportunities to develop out some transversal skills - skills which are defined as:

- Critical and innovative thinking
- Interpersonal skills (e.g. presentation and communication, skills, organisational skills, teamwork, etc.)
- Intra-personal skills (e.g. self-discipline, enthusiasm, perseverance, self-motivation, etc.)
- Global citizenship (e.g. tolerance, openness, respect for diversity, intercultural understanding, etc.)
- Media and information literacy, such as the ability to locate and access information, as well as to analyse and evaluate media content
- Others (e.g. ethical, cultural, religious)

Indeed, the European Union has recently developed and published its own nine version competency framework LifeComp to emphasise the importance of learning to learn across formal, work-based and social learning environments.

2   http://www.ibe.unesco.org/

Key Recommendations

A roadmap needs to:

- Align with national and international definitions, standards and frameworks pertaining to Micro-Credentials to ensure their currency and wider recognition as valid assessed training and professional development.
- Promote national dialogue and sectoral participation in education activities to mature the current level of awareness, understanding and potential of Micro-Credentials i.e. recognition of work-based / experiential learning and life-wide learning.
- Support capability mapping of current CPD provision within organisations to help recognise where Micro-Credentials might support a more agile, flexible and stackable approach to training and professional development.

Who needs to be involved?

There is a risk of the transformative potential of Micro-Credentials being diminished if the full range of stakeholders do not participate actively in discussions. A key strength of the global Micro-Credentialing movement is an emphasis on, and more direct alignment with, industry. Notably, a feature of many bottom up Micro-Credential initiatives is their endorsement by industry. Many early badging innovations for instance were co-designed with industry partners. Indeed Skillnet Ireland has taken the lead on this through a variety of activities including the Digital Badge Symposium: Shaping Workforce Development and the work of the Taste4Success Skillnet in partnership with University College Cork in the Food and Agri-Food Sector.

Pictured L-R: Professor Paul McSweeney, Vice President for Learning and Teaching, University College Cork, Rob Horgan – Entrepreneur & Owner of Velo Coffee, Bridie Corrigan Matthews, Network Manager of Taste 4 Success Skillnet and Paul Healy, Chief Executive of Skillnet Ireland.
Source: https://www.skillnetireland.ie/digital-badge-sympo-sium-shaping-workforce-development/

Meaningful partnerships between training providers and industry are needed to develop impactful Micro-Credentials that better address current and projected skills gaps. As a leading expert in the field commented:

> There is a perception that skills training is designed around the assumptions of what industry needs, rather than their actual need.

- Tara Rodoni, founder, "Qalibrates" and "Sage Education Marketing" (2020)

Further to this, the co-design and co-delivery of Micro-Credentials through industry-educational partnerships are a powerful lever to help increase human capacity for the changing nature of work and deliver on the vision of Ireland's National Skills Strategy 2025 to be renowned as a place where talent thrives. Skillnet Ireland is well positioned to transition its existing model of industry-led training provision into the Micro-Credential landscape.

Multi-stakeholder approach is key to establish Ireland as a hub of Micro-Credential activity **within Europe and internationally.**

- (Professor Mark Brown, National Institute of Digital Learning, DCU, 2020)

The ultimate goal of partnerships is to ensure cohesion, and that any development is reflective of both the aligned requirements and strengths of partners. As such, industry and organisations therein are not expected to develop the competencies, skills and know-how of education and training providers, particularly in the validation, assessment and recognition of learning or indeed in learning design. Three central questions for organisations and Skillnet Network members, therefore, are:

1. What opportunities exist for more co-designed and cohesive partnerships?
2. How can our organisation/sector play an active role in facilitating the co-design and co-delivery of Micro-Credentials to enable credible and relevant employee and employer forms of certification?
3. What industry and professional fora can be used to help broker and facilitate meaningful co-design and co-delivery of Micro-Credentials?

This approach to developing Micro-Credentials leverages the strengths of partners - leading to cohesive, sustainable and demand-driven offerings. This model contrasts with the mainly supply-driven approach where existing training and higher education providers typically design macro-credentials based on current knowledge and perceived needs with limited engagement with industry partners. From this perspective Skillnet Ireland and its constituent networks are well placed to be an integral part of the Micro-Credential ecosystem in Ireland.

Key Recommendations

A roadmap needs to:

- Engage key stakeholders, particularly employers and employees within the Skillnet Networks, in a series of strategic, awareness-building workshops, to discuss the core findings of this national survey, and explore further how they can co-design and co-deliver Micro-Credentials with providers.
- Promote organisational and sectoral mapping of CPD approaches and future skills requirements to identify gaps and leverage the potential of the co-design and co-delivery of Micro-Credentials working in partnership with trusted providers.
- Support piloting of models of co-design, co-development and co-delivery of Micro-Credentials with trusted providers so that better evidence can be gathered, and valuable lessons learnt about the potential and actual benefits for all stakeholders.

How to implement?

Much of the implementation work related to the widespread adoption of Micro-Credentials with real currency and coherence is taking place at national and international levels. International initiatives are beginning to provide the common language, agreed frameworks and shared infrastructure necessary to support and facilitate the mainstreaming of quality assured, assessed Micro-Credentials into national systems of higher and further education. These initiatives are ongoing and will take a period of time to bed down within and across jurisdictions. They are vital in providing the consistent standards and framework which will ultimately guide the development of Micro-Credentials within the wider qualifications landscape.

Notably, in Ireland the Higher Education Authority (HEA) through the Human Capital Initiative (HCI) and the Government's Covid-19 Stimulus Package (HEA, 2020) have allocated significant funding for the development of Micro-Credential like provision, which translates to 14,000 places on short, modular courses, where, "...participants can acquire skills and put them into practice immediately in the workplace"

- (ibid, p.1 2020)

The Skillnet Ireland initiative, "Skills Connect", launched in response to Covid-19 points to another example where a Micro-Credential approach to underpin it could provide recognition and standardisation to the reskilling of participants affected by the pandemic into new sectors. The broad range of networks involved in this initiative illustrate the breadth of learning opportunities being made available from MedTech manufacturing, cyber security, wind energy, software programming, digital marketing, customer service and CX, to logistics and warehousing. Building on these national initiatives is important and significantly Skillnet Ireland's 2021-2025 Strategy, points to the need to develop co-designed and co-delivered Micro-Credential offerings in tandem with educational partners (Skillnet, 2020). Initiatives arising from this strategic objective will be critical to underpin awareness and up-take across employer and education ecosystems to harness the potential of these forms of credentials to support focused skill provision and capacity building across sectors.

Within Ireland, and perhaps also internationally, examples of Micro-Credential offerings at scale are rare, except for and mainly in IT led-organisations such as Google or in other computing-based or technical sectors. At present Dublin City University (DCU) is the only higher education provider in Ireland to offer credit-bearing Micro-Credentials. Other issues of equal importance include the development of technical solutions to provide both the architecture and infrastructure to underpin the recognition and validation of Micro-Credentials. These systems must address issues of validation, portability, recognition and security, amongst others. It should be noted that advances in digital credential systems which allow for the storage of certified, verified transcripts and institutional documents along with the publication of the same by learners/employees are critical to engender trust and credibility.

Whilst consideration might be given to develop or to re-orientate learning and training platforms into data storing and publishing platforms used to store on the job learning experiences of employees, and/or opportunities for learning by employees, such initiatives should be considerate of the

substantial moves to develop standards and interoperability in this space and the risk of fragmented and individualised siloed solutions. European initiatives are progressing in this space too, with significant developments being announced in recent months in relation to the Europass platform in particular. The rapid adoption of preferred national providers internationally illustrates the demand for standardised technical solutions, an example of which is the Digitary platform's adoption in universities throughout Canada, Australia and New Zealand.

At the organisational level there may exist a desire amongst employers for personalised, flexible and individualised solutions, which, while theoretically-possible, may prove unrealistic, or difficult to implement to the degree desired, due to insufficient scale for many SMEs. As already noted, local Micro-Credentialing initiatives that lack currency, cohesion and consistency may be counterproductive. Potentially, the most significant body of work to be done at a sector and/or organisational level will be considering and implementing change based on a response to the following questions:

1. What skills gaps must be addressed within the sector/ organisation?
2. Are current HR and professional development practices scanning the full breadth of organisational functions flexible enough to include Micro-Credentials?
3. Can we deliver a unique talent proposition to employees in a cost-effective manner by supporting upskilling and reskilling using a co-designed and co-delivered Micro-Credential approach?

In terms of practical implementation, a number of factors should be taken into account in the design and delivery of Micro-Credentials. Figure 2 outlines seven components of a Micro-Credential descriptor along with current variations within each component, which will need to be considered in the design, development and delivery of Micro-Credentials.

Key Recommendations

A roadmap needs to:

- Help organisations review their HR practices to consider alignment with a Micro-Credential approach.
- Support further and in-depth research on sector wide pilots to review and identify key lessons on Micro-Credential adoption, design and implementation.
- Promote and fund collaboration and dissemination of Micro-Credential development and delivery within and across sectors to build a stronger culture of partnership between industry, professional & employee bodies, training and higher education providers.
- Create a National Steering Group comprising of the breadth of stakeholders to create a national strategy, co-led by the The Department of Further and Higher Education, Research, Innovation and Science and the Department of Enterprise, Trade and Employment to oversee future developments and funding with a remit to monitor and promote a coherent national response to EU/global initiatives (drawing on regional & industry strengths) regarding Micro-Credentials with the specific aim to position Ireland as an international hub of excellence and delivery in this space.

Learning	→	New Learning (e.g. course or training programme)		Prior Learning (e.g. knowledge and skills gained on-the-job)	
Mode	→	On Site	Online		Onsite and Online
Provider	→	Public HE Provider	Private HE Provider	Industry Provider	Provider Partnership
Graded Assessment	→	Continuous	Continuous and Exam	Exam Only	Portfolio
Alignment	→	NFQ		Professional Framework	
Award	→	Digital Certificate		Digital Badge	
Stacking	→	Vertical Credit-bearing Towards larger qualification	Horizontal Credit and non-credit bearing Standalone	Diagonal Combinations or variations of vertical and horizontal stacking	
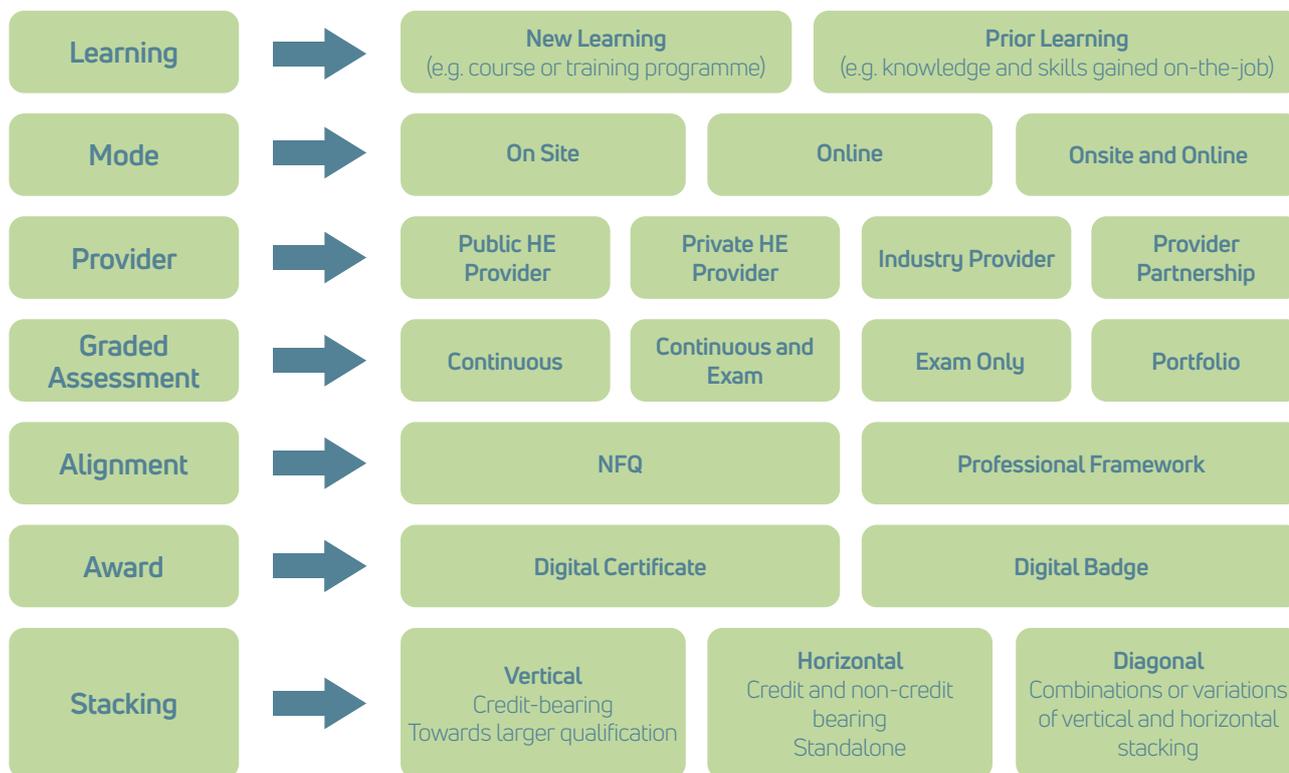
Adapted from Oliver (2019)

Conclusion

Translating the potential of Micro-Credentials as a positive change for lifelong learning and 21st century skills cannot be done in a vacuum or exist in isolation from larger questions and tensions from a multitude of perspectives and contexts. This roadmap has emphasised, whilst focusing on the why of Micro-Credentials, who should be involved and how to:

- Understand and conceptualise Micro-Credentials in a coherent manner, with a strategic focus, and oriented towards ensuring the ultimate value of any such credential as an attractive proposition for both employers and employees. Any such value will be built upon a clear definition, recognised standards, and the reflection of both national and global trends.
- Promote an inclusive approach, reflecting the diverse stakeholders inherently involved in the provision of Micro-Credentials, and harness the power of stakeholder diversity. Recognition of the complex ecology and differing values and emphasises of different groups can prove enriching, and ensure broader buy-in from relevant bodies and individuals.
- Explore the practical and technical elements of implementation and remaining mindful of the tensions inherent in providing standardised, national frameworks. The need for iterative, inductive and small-scale case studies, as a means of assessing and iterating on the quality of provision, is also emphasised.

Though this roadmap does not, and cannot, dictate the path to take in an evolving and iterative field, it has been written with a clear focus on the questions, developments and strategic concerns which should be highlighted for those who are doing so. Remaining mindful of and responsive to these questions is a strong first step in the further evolution of new, innovative and exciting approaches to credentialing, which can reflect the demands and needs of business and employees in the 21st century.

As identified in the paper, Micro-Credentials: An Evolving Ecosystem, employers and employees are key stakeholders in the Micro-Credential movement and have an important role to play in the successful development of the field. At present, however, industry is under-consulted and under-represented in academic, business and grey literature. Based on this gap, surveys of employers and employees were conducted during Summer 2020.

The following section presents the findings from these surveys and the methodology used to collect these findings.

National Micro-Credential Employer and Employee Surveys

The National Micro-Credential Survey was undertaken in summer 2020 to investigate employers and employees' understanding and perceptions of the potential of Micro-Credentials in supporting continuing professional development and lifelong learning more generally. Data was collected from 61 employers and 160 employees across industry in Ireland during a selected two-week period from July 15st - 31st, 2020. The survey consisted of two separate online survey instruments and each instrument contained a number of quantitative questions, Likert scale questions, and open-ended free-text qualitative questions.

Key themes addressed by the survey include:

- Familiarity and understanding
- Levels of interest
- Current CPD practices
- Perceived benefits
- Factors that would influence adoption

The survey was open to participants working in industry in Ireland. Respondents self-selected whether they were answering as an employer (i.e. on behalf of their company or organisation) or as an employee (i.e. answering from their own perspective). Convenience sampling was used to recruit participants. Key contacts circulated the survey among employers in the five Skillnet Networks. The survey was also disseminated through a number of social media platforms (e.g. Twitter, LinkedIn). High level insights from both surveys are presented below, followed by the remaining findings from the survey.

Key Trends

The National Micro-Credential Survey identified 4 key trends.

1. There are differing levels of maturity in current knowledge.
While nearly half of employers surveyed (49%) had heard of the term 'Micro-Credential', only 37% of employees had. Self-reported levels of understanding were also varied. Exposure to Micro-Credentials day-to-day was limited on both sides. 80% of employers said they 'never' or 'rarely' came across them on job applications, while only 20% of employees had earned a Micro-Credential.

2. Stakeholders are interested and want to know more.
Despite varying levels of understanding, both employers and employees have expressed a strong interest in Micro-Credentials and a desire to learn more about them. The majority of both employers (64%) and employees (63%) were either "extremely" or "very" interested in learning more about Micro-Credentials.

3. Micro-Credentials are for the here and now.
Employee objectives for earning a Micro-Credential were predominantly motivated by internal progression, and the enhancement of skills and knowledge for their current role. Less emphasis was placed on Micro-Credentials as a means of furthering their education, or seeking a new role. Furthermore, when asked what they might do with a Micro-Credential, only 31% said they would look into using it as a pathway to a larger qualification. Similarly, employers saw Micro-Credentials as a means to recognise and reward personal growth and progression among the workforce, rather than to quantify existing skills, or to increase competitiveness.

4. Common constraints exist for both employers and employees.

The attractiveness of Micro-Credentials was bound by time and cost constraints for both individuals and organisations. Most employers anticipate expenditure on future Micro-Credential-based CPD to be the same (64%) or less (22%) than what they currently spend on CPD. Similarly, employees emphasised that the amount of time they had available (83%) and cost of earning the credential (73%) were key constraints. Fewer emphasised the time it would take to complete a Micro-Credential (66%), and the difference in the two implies that employers may need to balance any offerings with a consideration for other workload concerns, particularly as 64% also noted their participation would depend on level of employer support.

Key Insights from Employers

- Employers have not seen micro-credentials listed on employment applications with any regularity.
- Many organisations are seeking new forms of certification and approaches to CPD, even where such systems are not in place.

- More employers placed emphasis on Micro-Credentials as a means of recognising skills development and building a culture of CPD, than quantifying skills or improving competitiveness.
- Employers want to hear more about Micro-Credentials, and do envision utilising them in the future. However, they will need Micro-Credentials to be flexible, customisable and offered without significant new cost.

Key Insights from Employees

- Time is a key factor for time-poor professionals, employers need to ensure Micro-Credentials do not come at the expense of other commitments
- Employees emphasised improving skills relevant to their current job, keeping up to date with developments in their sector, and achieving an internal promotion as the top three motivators for engagement with Micro-Credentials and CPD.
- Employees were not overly concerned whether the Micro-Credential led to a larger qualification.

Participant Profile: Employers

Respondents occupied the following roles in their company or organisation:

Owner/CEO
20.7%

Director
12.1%

HR Manager
12.1%

L&D Manager
10.3%

Other Senior Mgt.
44.8%
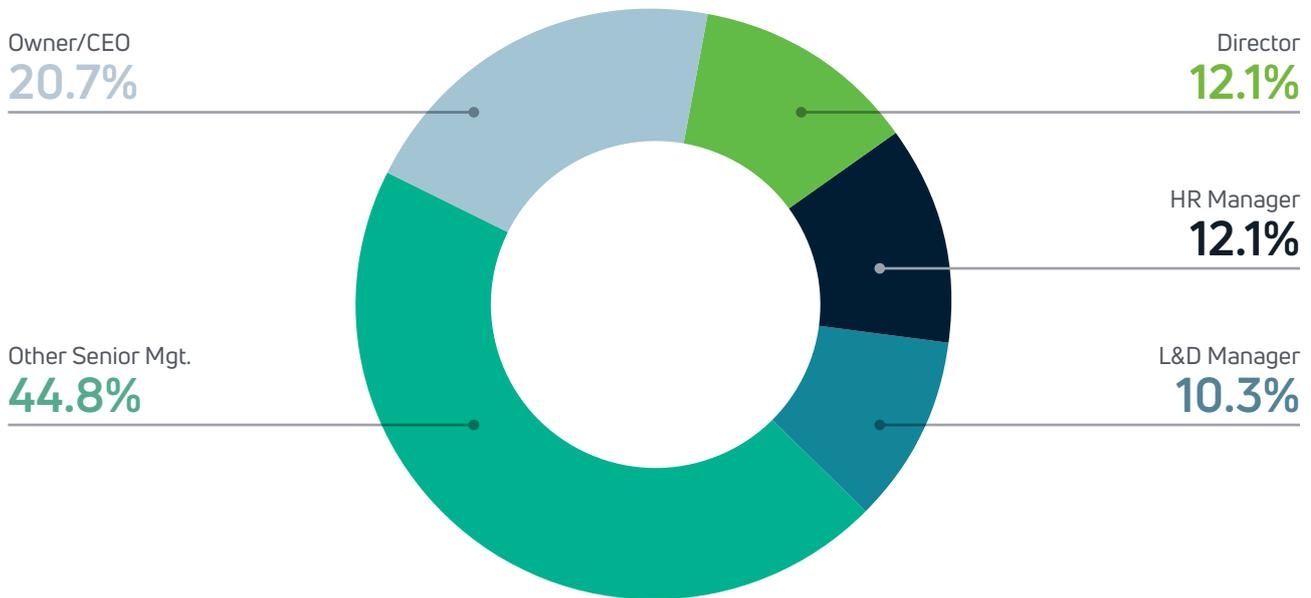
Industry Split:

Industry	N	%
Agriculture, Forestry, Fishing and Hunting	1	1.6
Wholesale	2	3.3
Transportation and Warehousing	2	3.3
Information Industry	1	1.6
Health Care and Social Assistance	1	1.6
Hospitality and Food	10	16.4
Mining	1	1.6
Construction and Manufacturing	17	27.9
Retail	1	1.6
Telecommunications	1	1.6
Finance and Insurance	1	1.6
Education	9	14.8
Arts, Entertainment, and Recreation	2	3.3
Government and Public Administration	1	1.6
Scientific or Technical Services	4	6.6
Other Industry	4	6.6
Unspecified	3	4.9

Participant Profile: Employee

Age

Age	%
18 - 24	4%
25 - 34	10%
35 - 44	29%
45 - 54	42%
55 - 64	13%
65+	2%

Gender

Prefer not to say: 1%
Male: 44%
Female: 55%
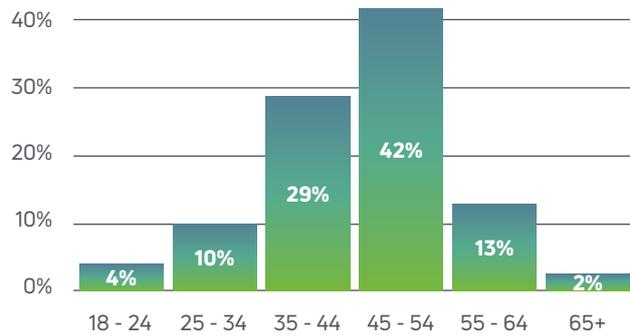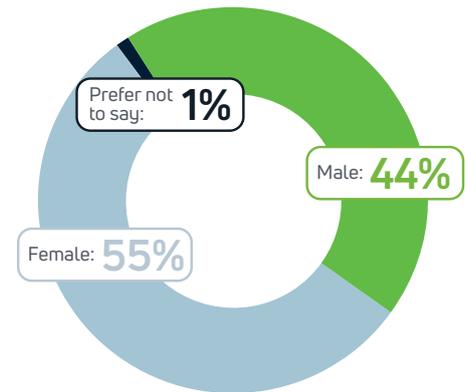
Highest Level of Education

Level	%
Doctorate (PhD)	3%
Postgraduate Degree (Masters)	32%
Postgraduate Certificate or Diploma	12%
Professional Qualification	5%
Bachelor's Degree	21%
Diploma/National Certificate	16%
Technical or Vocational Qualification	3%
Secondary Education	5%
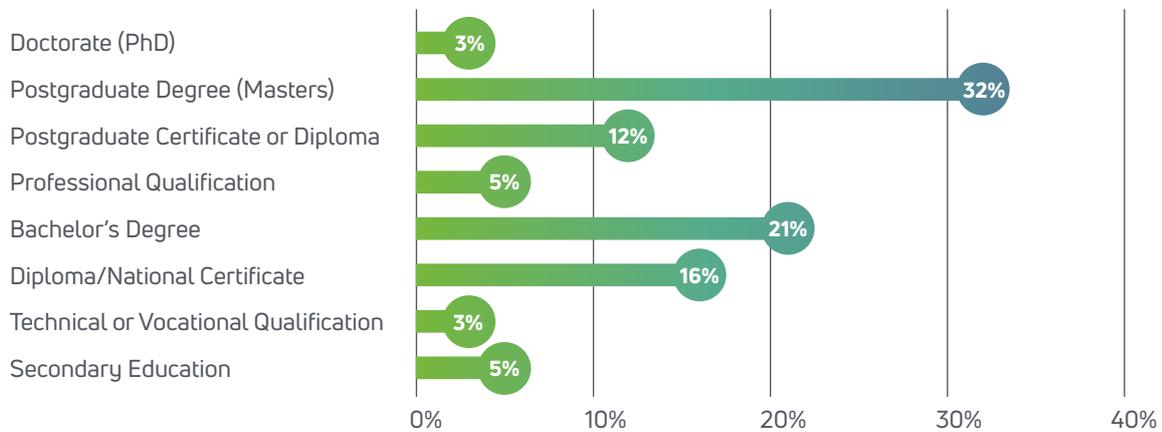
Industry Split:

| Industry	N	%
Arts, Entertainment, and Recreation	2	1
Education	38	24
Manufacturing (Computer, Electronic & Other)	59	37
Construction	2	1
Finance and Insurance	9	6
Government and Public Administration	3	2
Health Care and Social Assistance	3	2
Information Services and Data Processing	1	1
Retail	3	2
Scientific or Technical Services	5	3
Software	3	2
Telecommunications	1	1
Transportation and Warehousing	1	1
Utilities	1	1
Agriculture, Forestry, Fishing and Hunting	1	1
Hospitality & Food	6	4
Other Industry	22	14

Employer Survey Findings

Understanding among employers is divided.

Prior to taking part in this study had you ever heard of the term 'Micro-Credential'?
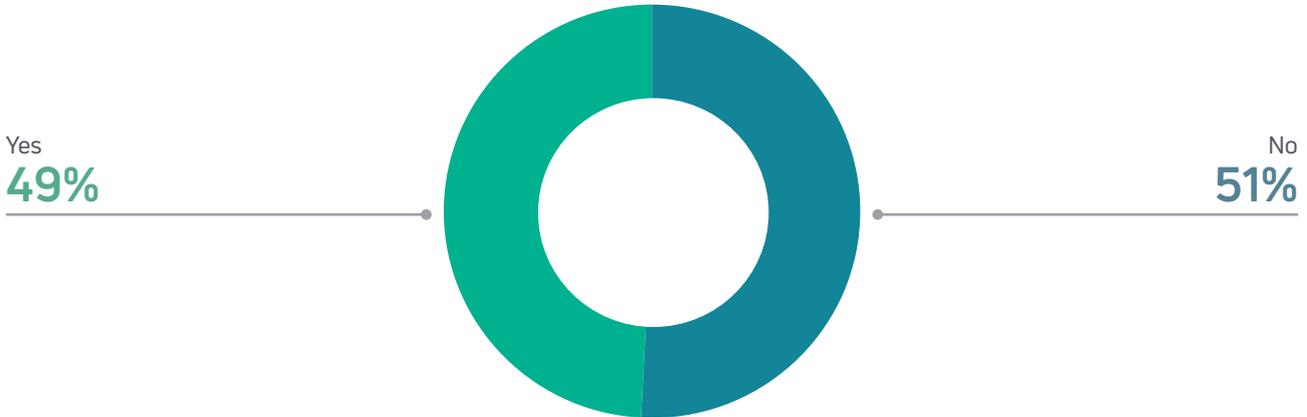
Yes
49%

No
51%

To what extent would you agree with the following statement?
"I am knowledgeable about Micro-Credentials".

Strongly disagree	27%
Somewhat disagree	17%
Neither agree nor disagree	13%
Somewhat agree	35%
Strongly agree	8%

0%   10%   20%   30%   40%
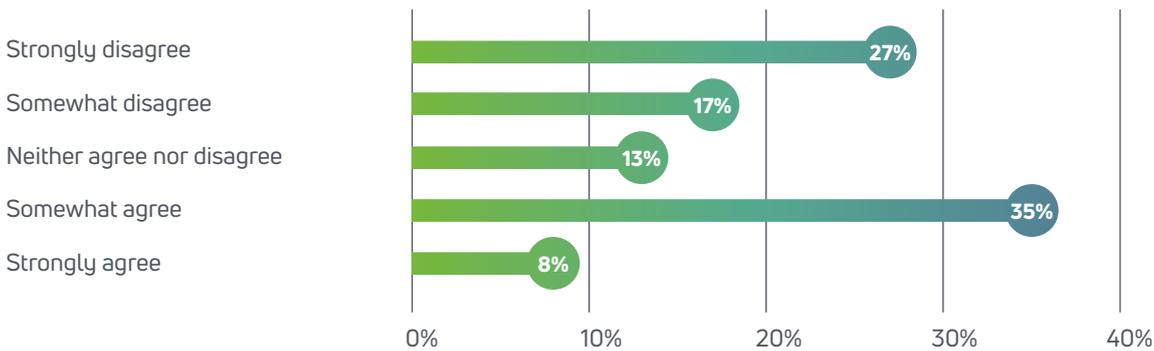
Continuous professional development (CPD) isn't formalised by all. Nearly half of the companies or organisations represented in the survey do not have a formal CPD programme.

Does your company or organisation have a formal CPD programme for employees?

Unsure
7%

Yes
45%

No
48%
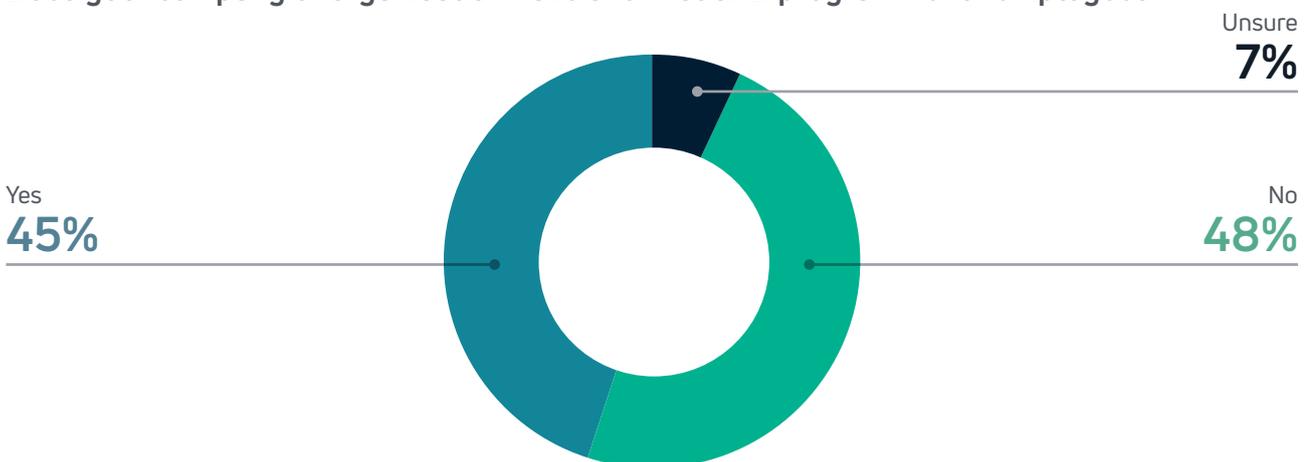
Micro-Credentials do not feature prominently in the recruitment process.

80% of employers said they "never" or only "sometimes" come across a candidate who has mentioned a Micro-Credential in their job application.

How often do you come across Micro-Credentials on job applications?

|	
Always	0%
Most of the time	8%
About half the time	12%
Sometimes	40%
Never	40%

(Axis: 0% 10% 20% 30% 40%)
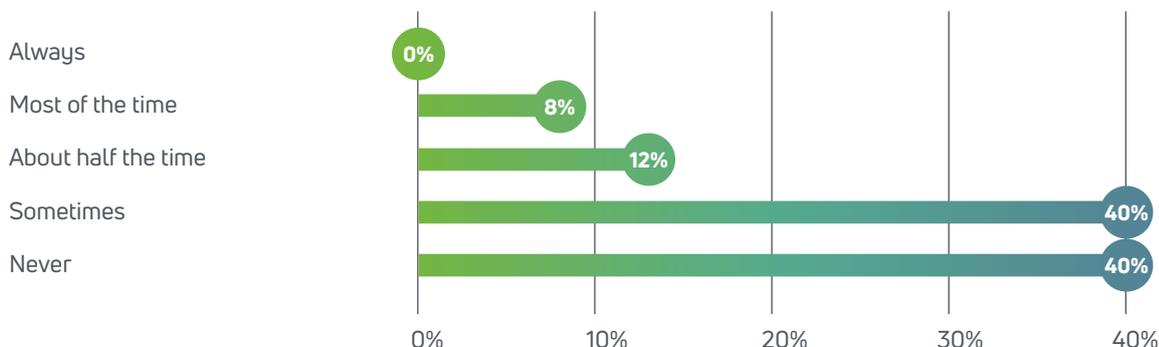
Nevertheless, employers value non-formal certification pathways.

In the recruitment process, how important is certified training that is earned outside the formal education system?

Not at all important	2%
Slightly important	13%
Moderately important	32%
Very important	38%
Extremely important	15%

(Axis: 0% 10% 20% 30% 40%)
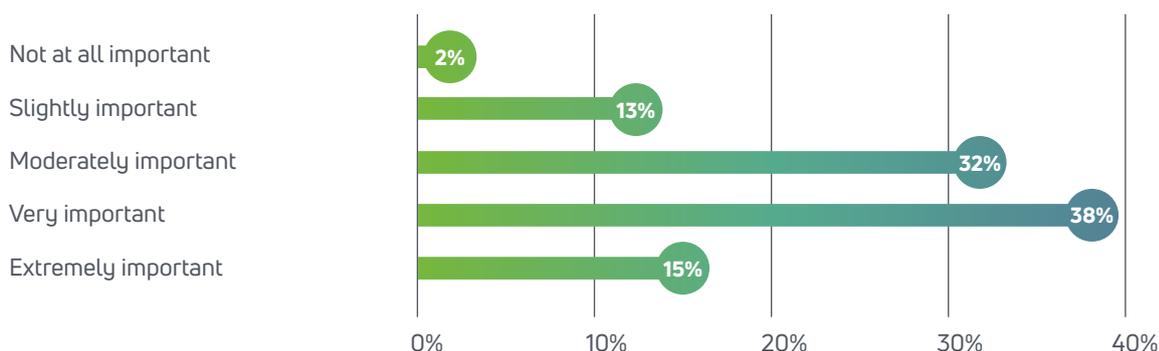
Employers are interested in Micro-Credentials and want to know more.

To what extent is your company or organisation interested in integrating Micro-Credentials into training and CPD programmes?

Donut chart values: 4%, 13%, 8%, 40%, 35%
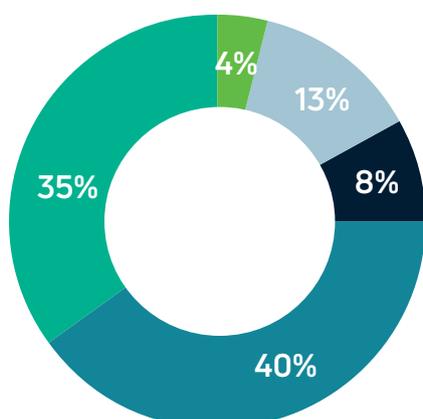
- This company or organisation is currently exploring and considering integrating Micro-Credentials into our training and CPD
- This company or organisation is likely to consider integrating Micro-Credentials into our training and CPD
- Don't know
- It is unlikely that this company or organisation will consider integrating Micro-Credentials into our training and CPD
- This company or organisation has taken formal steps to integrate Micro-Credentials into our training and CPD programmes

How interested are you in learning more about the potential of Micro-Credentials?

| Category	Value
Not at all interested	0%
Slightly interested	4%
Moderately interested	28%
Very interested	32%
Extremely interested	36%
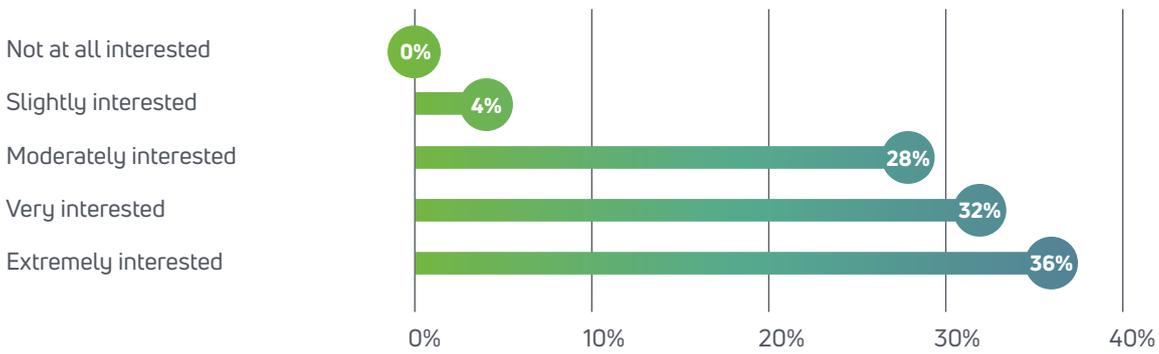
Employers see Micro-Credentials as a means of recognising achievements/skills and culture-building.

What do you see as the potential benefits of integrating Micro-Credentials into your training and CPD programmes?

Benefit	Value
Recognise and record hard and soft skills	81%
Build a culture of continuous development	77%
Improve employee engagement in CPD	70%
Structured approach to training and learning	66%
Address widening skills gap	64%
Improve employee retention	55%
Leverage the capabilities of the workforce	51%
Improve company competitiveness	49%
Deliver training on demand	47%
Quantify skills for planning purposes	28%
Improve transparency	19%

It is important to employers that Micro-Credentials are aligned with existing qualification frameworks.

How important is it to your company or organisation that Micro-Credentials come under a recognised qualifications framework?

| Category	Percentage
Not at all important	4%
Slightly important	11%
Moderately important	51%
Very important	24%
Extremely important	9%
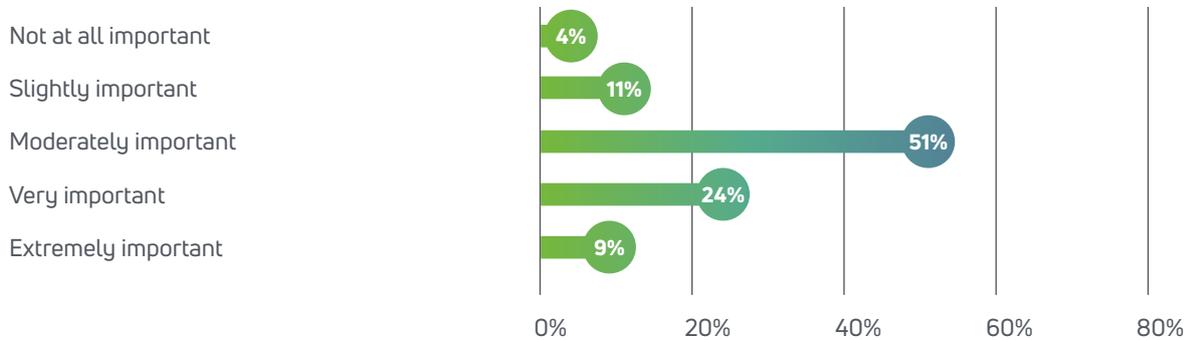
Employers need Micro-Credentials to be flexible, customisable, and cost effective. The portability of the Micro-Credential is not as important to them.

What factors would influence your company or organisation's decision to integrate Micro-Credentials into your CPD or training programmes?

Factor	Percentage
Flexibility	77%
Ability to personalise	67%
Cost	63%
Stackability	63%
Validation from recognised training provider	61%
Assessment	58%
Accreditation	58%
Portability	5%
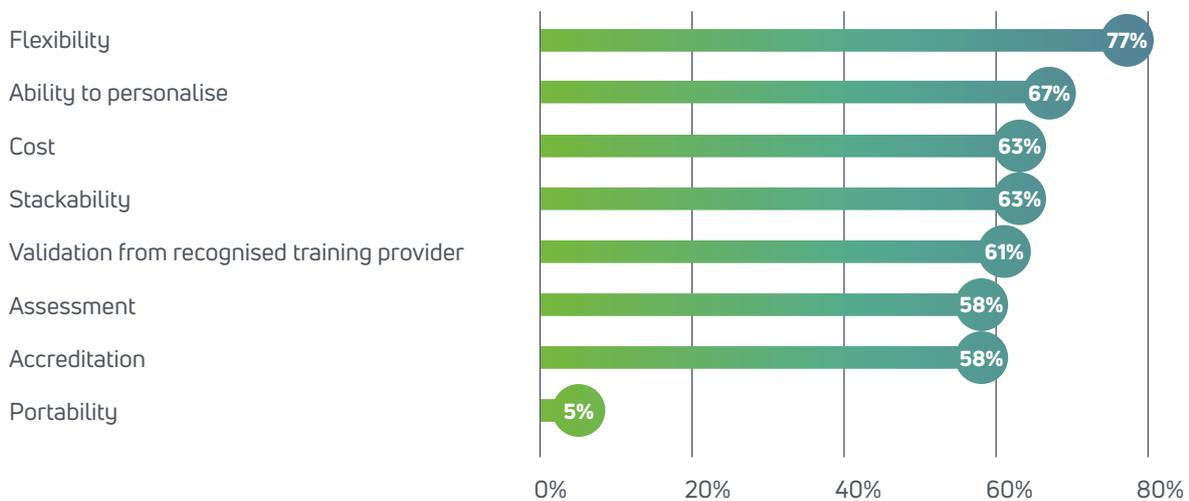
What would your company or organisation be prepared to spend on a programme of CPD leading to a Micro-Credential?

| Option	Percentage
Nothing	4%
Less than we currently spend on training/CPD	22%
The same as we currently spend on training/CPD	64%
More than we currently spend on training/CPD	9%
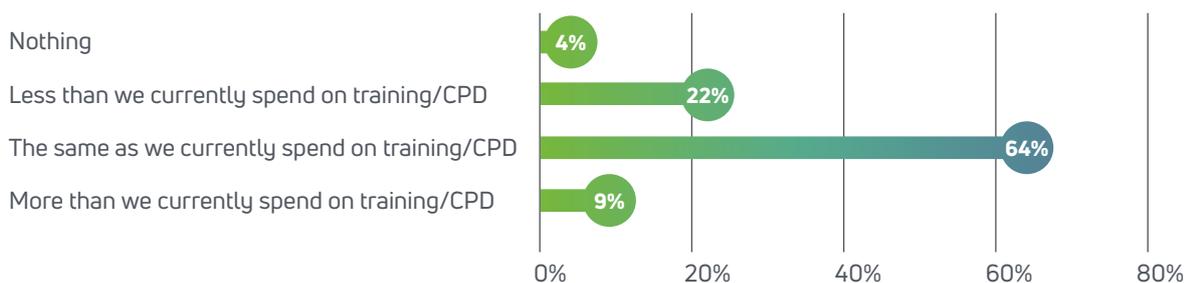
Employee Survey Findings

Familiarity with Micro-Credentials is low among employees.
Nearly 40% of respondents weren't sure whether they had ever earned a Micro-Credential before.

Prior to taking part in this survey, had you ever heard of the term 'Micro-Credential'?
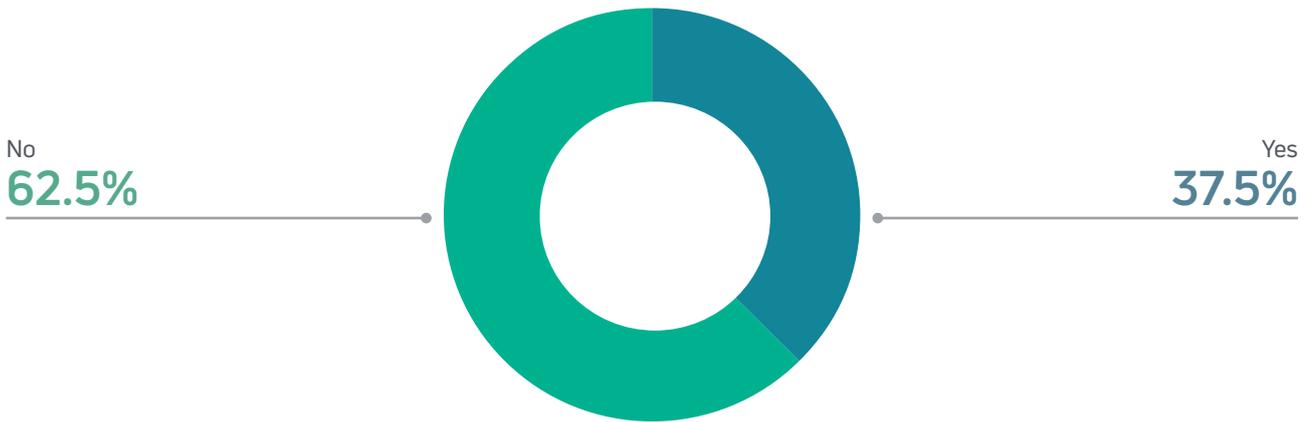
No
62.5%

Yes
37.5%

To what extent would you agree with the following statement?
"I am knowledgeable about Micro-Credentials".

Strongly disagree	3%
Somewhat disagree	24%
Neither agree nor disagree	15%
Somewhat agree	20%
Strongly agree	38%

0%   10%   20%   30%   40%   50%
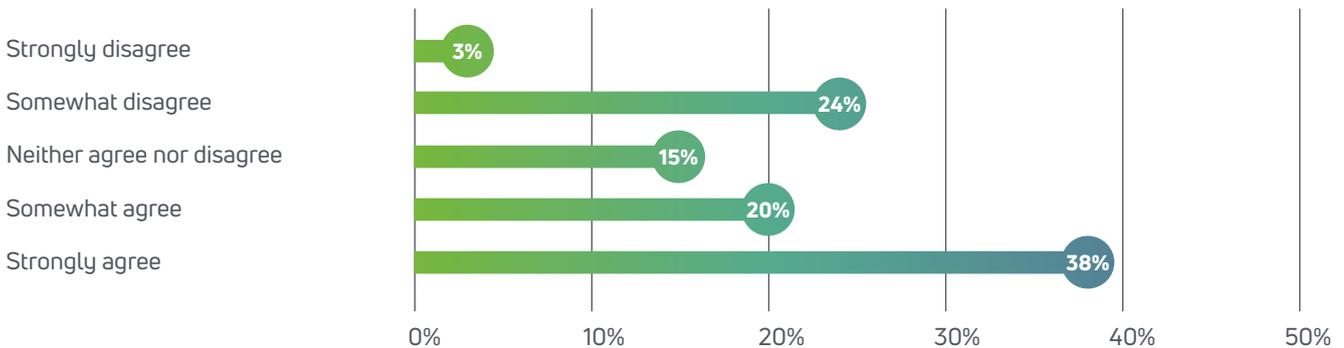
Have you ever earned a Micro-Credential?

Yes
20.1%

Unsure
39%

No
40.9%
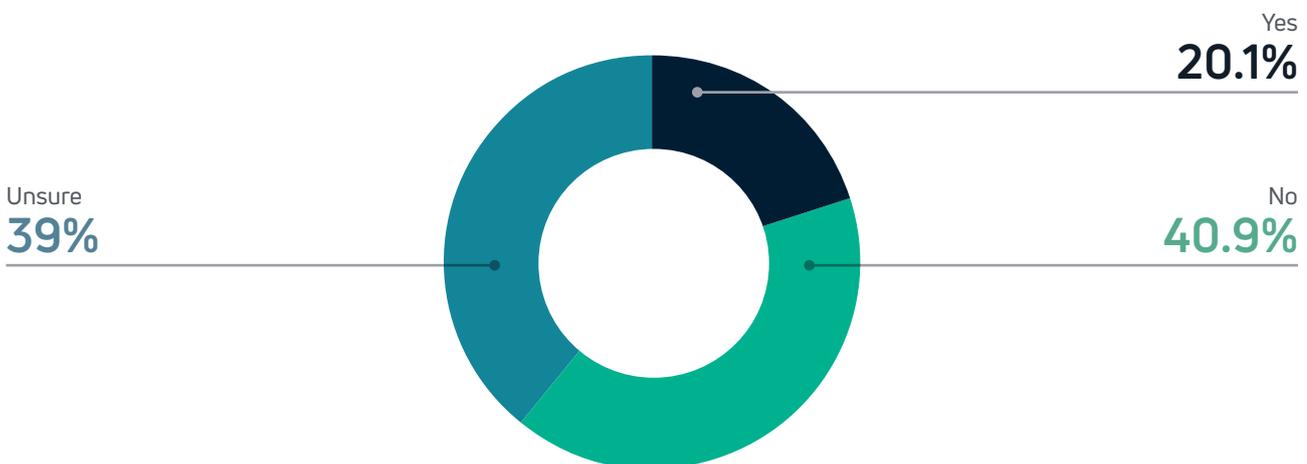
CPD is important to employees. Over 80% of the respondents currently avail of CPD opportunities.

**How important is Continuous Professional Development (CPD) to you?**

Category	Value
Extremely important	49%
Very important	33%
Moderately important	14%
Slightly important	6%
Not at all important	4%

(0% – 10% – 20% – 30% – 40% – 50%)
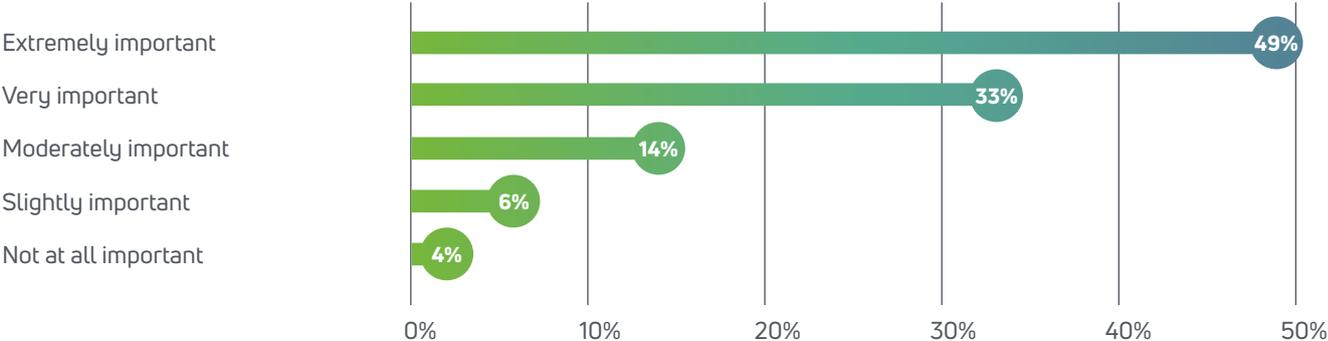
Do you engage in CPD in your current position?

No
19.4%

Yes
80.6%

Employees are interested in Micro-Credentials and want to know more.

How interested would you be in earning a Micro-Credential?

| Category	Value
Extremely interested	40%
Very interested	32%
Moderately interested	24%
Slightly interested	4%
Not at all interested	0%

(0% – 10% – 20% – 30% – 40% – 50%)

How interested are you in learning more about Micro-Credentials?

|	
Extremely interested	30%
Very interested	39%
Moderately interested	26%
Slightly intersted	3%
Not at all interested	1%

0% 10% 20% 30% 40%
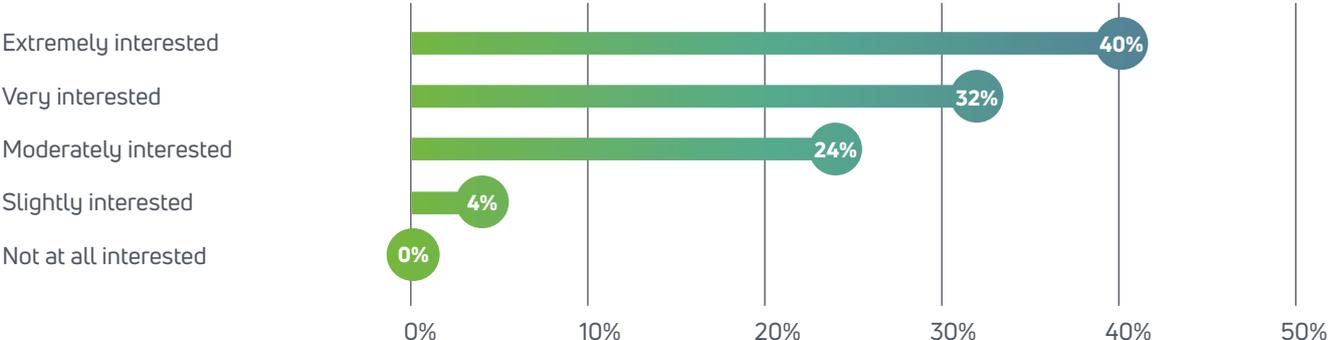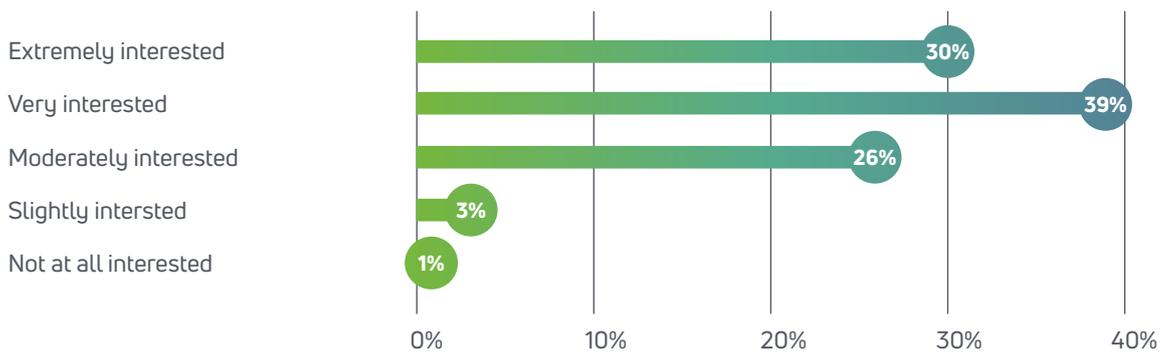
Micro-Credentials to add to your CV. Employees were less likely to use the Micro-Credential as a pathway to further education. This may be because many respondents already held a high level of education.

If you were to earn a Micro-Credential, would you…?

|	
Put it on your CV	82%
Mention it in an interview for a new position	74%
Include it on your LinkedIn profile or other relevant social media sites	68%
Look for ways of using the Micro-Credential as a pathway to a higher qualification	34%
Add it to your Europass profile	8%
I wouldn't do anything with it	5%

0% 20% 40% 60% 80%
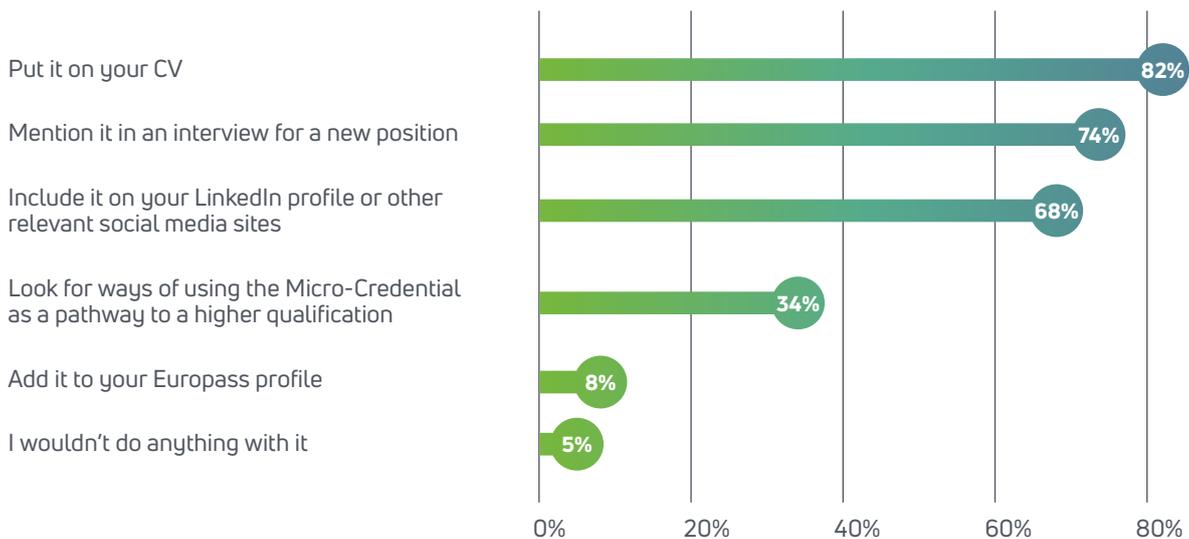
Employees see Micro-Credentials helping with skills and knowledge development in their current role.

What would your objectives for earning a Micro-Credential be?

Objective	Percentage
To improve my skills on subjects relevant to my job	84%
To keep up to date with what is happening in my sector	71%
To learn new skills to be able to change jobs/sector	45%
To attain promotion within my current company	40%
Learning for my own pleasure	37%
To demonstrate soft skills	34%
To maintain my professional registration status	21%
To collect a portfolio of badges	16%
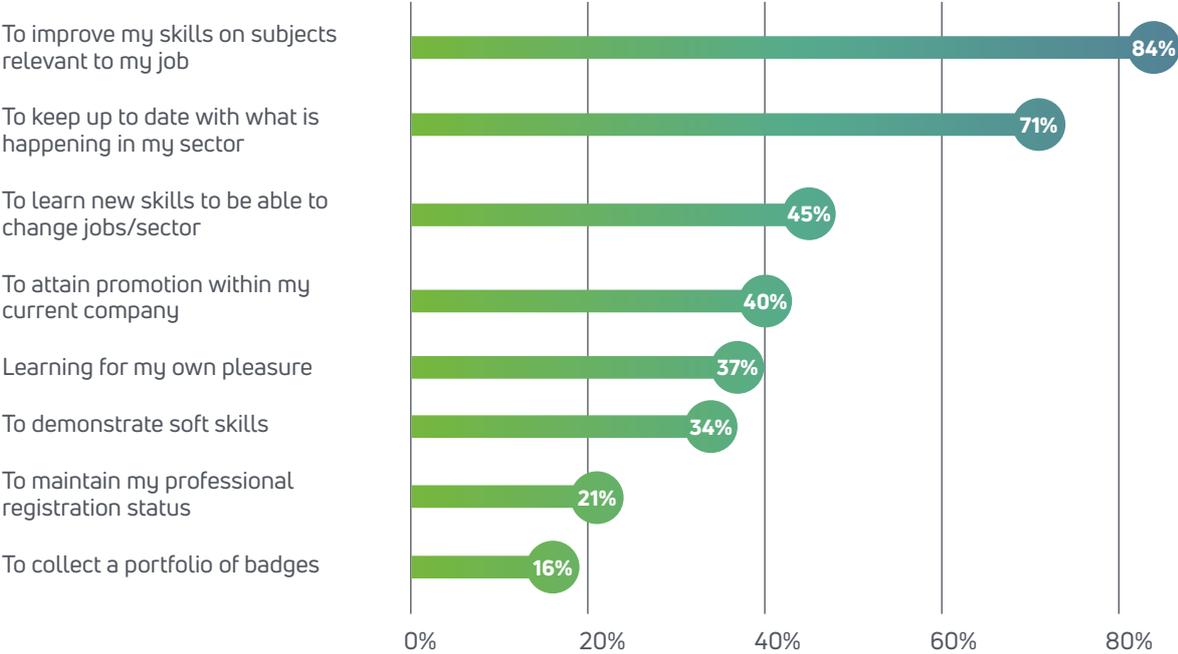
Time, cost and the quality of the provider are important to employees.
Less emphasis was placed on whether the qualification was internationally-recognised or whether it contributed to a larger qualification.

What factors would influence your participation in CPD leading to a Micro-Credential?

Factor	Percentage
Amount of time I have available	83%
Cost of the Micro-Credential	73%
Quality of the provider	71%
Length of time required to complete the Micro-Credential	66%
Level of support from my employer	64%
The relevance of the Micro-Credential to my career goals	64%
Mode of delivery	62%
Whether the Micro-Credential is internationally recognised	40%
Whether the Micro-Credential contributes to a larger qualification	30%

Percentages are rounded to the nearest whole number, as such totals may not add up to exactly 100%.

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UNESCO, International Bureau of Education, http://www.ibe.unesco.org/

UNESCO, UNESCO Bangkok Asia and Pacific Regional Bureau for Education, https://bangkok.unesco.org/

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