

CSA PUBLIC POLICY CENTRE

Activating the Full Potential of Micro-credentials in Canada

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Contents

Executive Summary 5

1. The Timeliness of Micro-credentials 6

2. Defining Features of Micro-credentials 7

3. Developing a Framework to Meet the Diverse Goals of Micro-credentials 10

3.1 The Ecosystem of Micro-credentials 10
3.2 The Value of Frameworks 13
3.3 The Value of Experimentation and Innovation 13

4. Assessing and Improving the Status Quo in Canada 14

4.1 Notable Provincial 'Frameworks' Referencing Micro-credentials 14
4.2 Adding Value with Meta-data 16
4.3 Adding Labour-market Outcomes to Meta-data 18
4.4 Trademarking Quality-assured Micro-credentials 20

5. What Works Elsewhere? 21

5.1 Frameworks in Other Countries 21
5.2 Lessons from the International Landscape 25

6. A Pan-Canadian Framework 26

6.1 Categorize Micro-credentials According to their Outcomes 26
6.2 Distinguish Category A, B, and C Micro-credentials from the Wider Universe 29
6.3 Experiment with AI to Create a Leveled Framework from the Ground Up 31
6.4 Incentivize Gathering Data About Outcomes 32

7. A Potential Future with Transparent Micro-credentials 33

Endnotes 35

Executive Summary

Micro-credentials are short postsecondary courses that lead to some form of standalone certification. The idea is not new – colleges and universities have offered continuing education for decades – but micro-credentials in Canada are at a pivotal moment in which they could become much more common than they are now.

Not all learners who need to retrain can afford to take the time to obtain larger credentials, especially if they face equity barriers. Micro-credentials offer the possibility of rapidly upskilling and reskilling, as well as retraining[1] in the face of a labour market that values mobility and rapid adaptation to changing skills needs. A set of complementary technologies and policy innovations make it possible to deliver micro-credentials conveniently, certify them reliably, and allow learners to easily share online that they have completed them.

A clear and cohesive framework for micro-credentials will maximize their value for learners. While there has been progress, Canada has not yet implemented a comprehensive national system. Canadian educators and policymakers can draw inspiration from global models like those in Europe and New Zealand to create a system for categorizing micro-credentials for learners, employers, and governments. A more unified Canadian micro-credential system would ensure that these certifications are transparent, and that educators, learners, and potential employers can differentiate among micro-credentials with different features. Educators of all types, from university professors to private industrial training providers, should be able to continue to develop some micro-credentials in an unregulated educational sandbox, with great freedom to innovate. However, there is a need to clearly distinguish at least one category that includes, at a minimum:

- some form of assessment;
- a certificate on a publicly accessible registry; and,
- data about the nature of the micro-credential, including provider, title, any prerequisites, learner effort required, and learning outcomes.

This category — Category A (see section 6.1 for complete framework) — should be legally protected by, for example, a trademark, an idea already proposed by Ontario's Postsecondary Education Quality Assessment Board (PEQAB[2]).

Providers of these micro-credentials should be required to enable research on the outcomes associated with their offerings if they want to use the mark.

This category would not require that the micro-credentials be assigned a level of study (for example, "equivalent to a first-year undergraduate course") or a credit value within the various provincial qualification frameworks for larger credentials, or that anyone make an expert judgment about quality.

However, within these protected micro-credentials there is scope to further distinguish micro-credentials that both have those features and can also be readily interfaced with degrees and diplomas (Category B). This would benefit learners who complete micro-credentials and then later want to pursue degrees or diplomas, although at present trying to get credit for micro-credentials does not seem to be common. Administering this category could be labour-intensive and we suggest experimenting with using machine learning to assign micro-credentials to levels of learning.

There are also micro-credentials that require endorsement of the quality of learning that the micro-credential represents by non-academic communities of knowledge, such as niche occupations whose members recognise each other but are not organized as an official profession. Defining those communities would require further investigation, but there should be space within the architecture of a micro-credentials framework to accommodate them (as a Category C) and the various ways in which they might endorse the learning certified by a micro-credential.

The value of micro-credentials, which could be significant, will be contingent on robust, standardized systems that clearly communicate the skills they certify. Establishing a national framework, whether government-led or facilitated by others, would establish clarity for both learners and employers.

1. The Timeliness of Micro-credentials

Micro-credentials have enormous potential *right now* if they can be conceptualized more clearly. There is an appetite for skills-focused learning but many people remain unclear that micro-credentials can provide this.

Providing learners with access to a diverse range of qualifications compatible with their varied skills needs, career aspirations, and lifestyles is an ongoing priority in the Canadian postsecondary sector. The opportunity costs of extended postsecondary education can be prohibitive—a degree can take several years to complete and include several courses that are not relevant for those already established in their careers. Many Canadians, not only older, established workers but also learners facing equity and inclusion barriers to education, cannot afford to take significant time off to pursue full-time study to update their skills.[3]

Further, workers in today's rapidly evolving economy face a common challenge: balancing the demands of their current roles with the need to keep up with shifting skills requirements. While their ongoing engagement at work adds value, it also carries the risk of their skills becoming obsolete or their industry declining in relevance.

In theory, micro-credentials offer learners the possibility of quickly acquiring, certifying, and demonstrating discrete skills, knowledge, and competencies that allow them to expand their career options, as well as serving a wide range of other educational goals (including simply meeting intellectual curiosity).

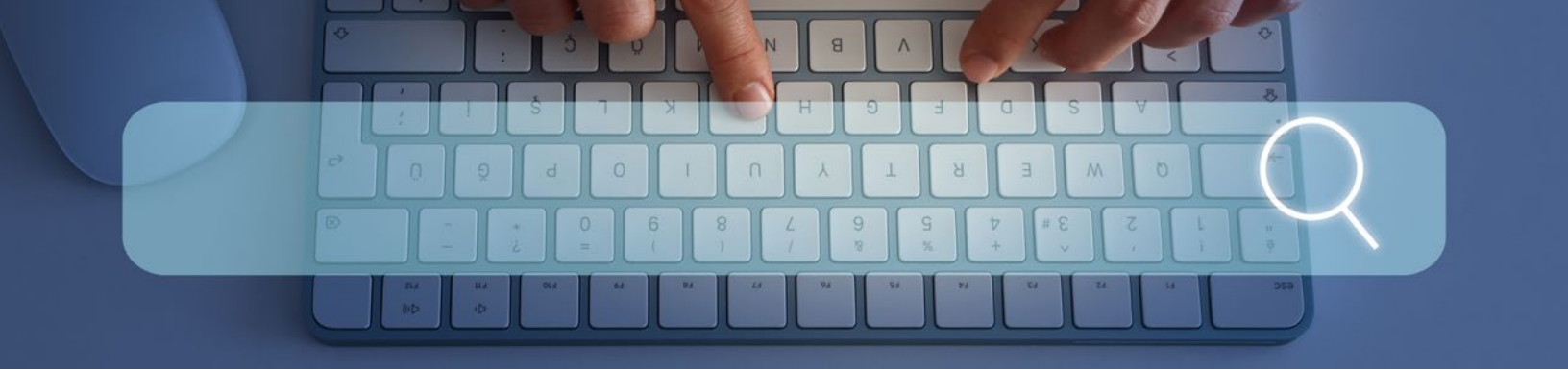
Global discussions about education, training, and labour market policy are increasingly focused on micro-credentials.[4] In a report for the Ontario Council on Articulation and Transfer, Higher Education Strategy Associates (HESA) has shown[5] that the use of the term *micro-credential* has grown significantly in recent years, particularly following the COVID-19 pandemic, which accelerated both the ongoing development of and increased need for flexible, short-term learning opportunities alongside increased government investments geared to incentivizing providers. In Canada, the growth in micro-credentials has been remarkable, with universities, colleges, and private providers offering micro-credentials to meet workforce demands. [6] Massive Open Online Courses (MOOCs); platforms such as Coursera, LinkedIn, and EdX; and employer-specific programs like those offered by Google and IBM have expanded offerings to target both professional and personal learning goals. According to Class Central, the number of micro-credential courses offered on the five major learning platforms grew from 600 in 2018 to over 1,900 in 2022.

Micro-credentials are not a new educational offering. There has always been demand for education that is more affordable and requires less time commitment than a full-time, year(s)-long macro-credential like a degree or diploma. But interest in micro-credentials has increased in recent years[7] because a set of complementary technologies now allows them to be quickly acquired by learners and relied on by employers and education providers. These new developments include:

- the accessibility of online learning, which makes it convenient to pursue micro-credentials. Instead of traveling to a campus, learners can simply log in when they have a break from work and listen to content or complete assessments;
- social networking platforms such as LinkedIn make it easier for learners to obtain micro-credentials and advertise that they hold them[8];
- secure platforms such as MyCreds/MesCertif™, launched by the Association of Registrars of the Universities and Colleges of Canada (ARUCC)[9] in 2020, allow institutions to issue digital credentials directly to learners' digital wallets. These build on recently developed technical standards such as Open Badges OBv2,[10] which aim to ensure enough data about providers and learner outcomes is shared to allow employers to quickly verify claimed credentials.

This final development — providing a clear record of what a learner has accomplished — means that micro-credentials could theoretically offer greater transparency for both learners and employers. This transparency would help employers assess what a candidate can do, aiding in career mobility.

To make this work, clear definitions and some conceptual architecture for fitting the various features of micro-credentials together are needed.



2. Defining Features of Micro-credentials

Many learners and employers outside the postsecondary education sector are not fully aware of what the term *micro-credential* means, partly because the term is defined inconsistently. While there are strict rules about what can be called a *degree*, there are no legal barriers to calling almost anything a *micro-credential*.

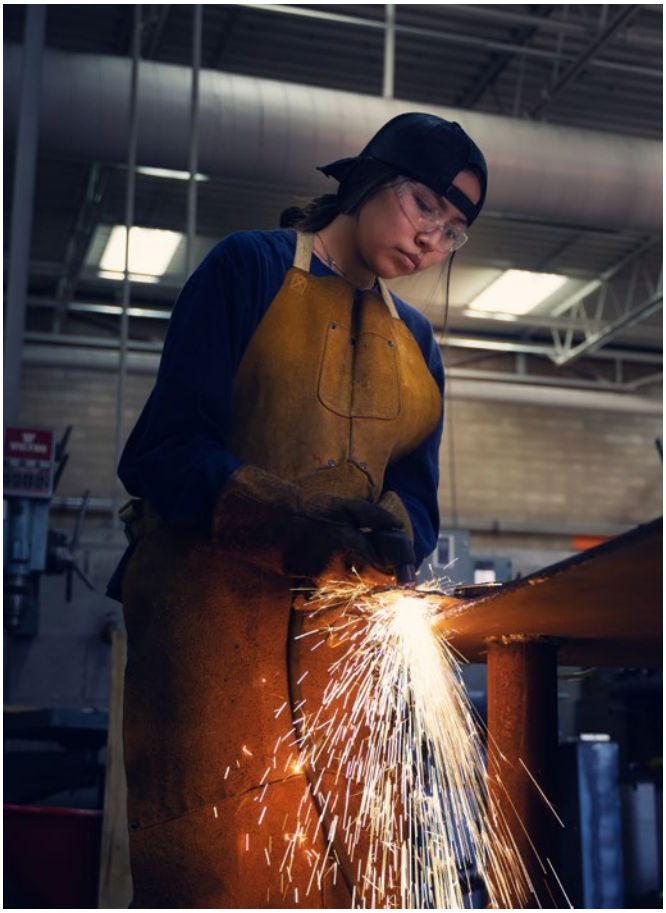
Generally speaking, *micro-credentials* represent certification of completed units of learning related to specific skills or knowledge. The term originated in the United States, and that country is home to most of the private-sector initiatives and companies operating in the micro-credential space. Unfortunately, there is no universally agreed-upon definition of what constitutes a micro-credential, and the term's usage varies across jurisdictions and institutions. The higher education sector is challenged by inconsistent language — with certificates for short learning or training formats being referred to in a myriad of ways, including *digital* or *web* ***badges***[11], *upskilling* or *reskilling*, *micro-certifications*, *partial/supplementary qualifications*, *micro-courses*, and *nano-degrees* or *nano-programs*.

Badges: The term *badge* is used frequently in the micro-credentials space. A *badge* is a digital token that can be advertised (for example, posted on a LinkedIn account) to show that someone claims a skill. Badges might reflect attainment of a micro-credential, but they are not formally regulated or defined — which can limit their recognition or the acceptance of the micro-credential across institutions and industries.

There is also a divide within the higher education sector about pedagogical thinking. Some think micro-credentials should be ***competency-based***, focusing on specific skills, while others see micro-credentials as a more standardized, incremental form of learning — essentially, smaller versions of traditional degree or diploma programs with comparable assessments[12].

Competency-based Learning: Competency-based learning (CBL) focuses on learners' mastery of specific skills or knowledge areas, and is often delivered in ways that allow progress at the learner's pace. This model gained traction in the U.S. during the mid-2010s, with major private-sector companies like Google and IBM supporting this model on a large scale and advocating for it as part of workforce development strategies. The competencies needed to obtain a micro-credential must be explicitly listed in much more detail than is traditional in academic degrees and diplomas.

The appeal of CBL in micro-credentialing lies in its transparency, as competencies help define the specific skills or knowledge acquired by a learner upon completion, aligning micro-credentials with labour market demands and providing clearer certification. Making competencies easier to assess, certify, and match with job requirements could bridge gaps between traditional education and evolving workforce demands.



The lack of consensus on what micro-credentials are, the diverse range of institutions offering them, and the differing goals for developing micro-credentials mean providers have been left to innovate in response to local needs without provincial-/state-level or national regulation. The advantages of this approach have been agility and flexibility. The disadvantages have included a lack of pan-institutional recognition and comparability of data. In other words, providers have been generally free to do as they wish. However, as a result, neither learners, providers, nor employers can be entirely confident in how the concept is being used.

A coherent, agreed-upon definition of micro-credentials will promote transparency. Currently, across various definitions of micro-credentials, there are two key features:

- micro-credentials represent smaller units of learning than legally recognized diplomas or degrees, typically representing less than a year of full-time study; and
- micro-credentials are certified through documentation that proves completion and often, but not necessarily, some form of assessment.
    - While only a minority of micro-credentials are probably awarded based solely on participation, the value of these for future career or study plans is unclear for the simple reason that there is no evidence the learner gained any knowledge or skills. Clearly distinguishing micro-credentials that have some form of assessment from those that do not is highly desirable.

Beyond this baseline, Canada could consider many already developed or accepted definitions to form a common Canadian definition for micro-credentials. This is likely to include elements of those crafted by the Organisation for Economic Co-operation and Development (OECD) in partnership with the Council of the European Union (EU),[13] or UNESCO[14]; Cedefop (related to vocational training) and the European Commission[15]; New Zealand's framework,[16] Australia's Framework,[17] the eCampusOntario micro-credential framework,[18] the British Columbia Micro-credential Framework,[19] Colleges & Institutes Canada's (CICan) National Framework for Micro-credentials,[20] the Postsecondary Education Quality Assessment Board's (PEQAB)[21] definition, or the Higher Education Quality Council of Ontario's (HEQCO) definition.[22]

Clear, consistent definitions are critical to support learner and employer awareness and describe learning outcomes. This point has been argued by several other analysts. For example, Cedefop research supports having a common European language clarifying the value of micro-credentials "for learners, education institutions and employers [that] would help promote their use and acceptance" and also emphasizes the need to not "jeopardize their flexibility and responsiveness to labour market needs through rigid standardization" or "over-regulation."[23] In a Canadian context, research conducted by HEQCO, in collaboration with the Business & Higher Education Roundtable and Colleges and Institutes Canada, revealed that 75% of Canadian working-age adults were unfamiliar with the term *micro-credential*, and 59% of employers across industries did not recognize them. HEQCO has further shown that lack of clarity is a barrier: 75% of employers and prospective students showed interest in micro-credentials *when presented with a clear definition*.[24]

Canadian definitions of micro-credentials include:

- eCampusOntario[25] embraced a definition put forward by the Royal Melbourne Institute of Technology (RMIT) that defines micro-credentials as being "used to certify an individual's achievements in specific skills and differ[s] from traditional education credentials, such as degrees and diplomas, in that they are shorter, can be personalised, and provide distinctive value and relevance in the changing world of work."[26] Further, eCampus Ontario outlines that a "micro-credential is a certification of assessed learning associated with a specific and relevant skill or competency. Micro-credentials enable retraining and augment traditional education through pathways into regular post-secondary programming."[27]
- PEQAB[28] presented a report proposing an Ontario Micro-credential Quality Assurance Framework that defined micro-credentials as certifications awarded for demonstrating mastery of specific skills, knowledge, or competencies that are industry-driven and align with professional and workforce demands. The courses are typically shorter than traditional credentials (12–40 hours); focus on practical, job-related skills; and the learning outcomes and assessments align with traditional credentials and may complement them. (At the time of this writing, this report and its recommendations have not yet been adopted by the Government of Ontario.)
- HEQCO[29] defines micro-credentials as recognition of small units of learning designed to provide job-specific skills or competencies. "A micro-credential is a representation of learning, awarded for completion of a short program that is focused on a discrete set of competencies (i.e., skills, knowledge, attributes) and is sometimes related to other credentials."[30] These credentials should be aligned with employer needs and focus on upskilling or reskilling individuals to meet labour market demands.

Internationally, the United Nations Educational, Scientific and Cultural Organization (UNESCO), OECD, the European Commission, and New Zealand have invested considerable time in coordinating stakeholders to align definitions, informed practices, and standards.

- UNESCO[31] defines a micro-credential: "as a record of focused learning achievement verifying what the learner knows, understands or can do; and includes assessment based on clearly defined standards, and is awarded by a trusted provider. The micro-credential has standalone value and may also contribute to or complement other micro-credentials or macro-credentials, including through recognition of prior learning; and, meets the standards required by relevant quality assurance."[32] They are offered by a wide range of providers and are often used for upskilling and lifelong learning.
- The OECD[33] defines micro-credentials as certifications of short, targeted learning activities that offer a way for diverse learners to retrain and upskill quickly and efficiently. These alternative credentials have been defined by the OECD as "credentials that are not recognised as stand-alone formal educational qualifications by relevant national education authorities."[34]
- The New Zealand Qualifications Authority (NZQA)[35] states that a "micro-credential certifies achievement of a coherent set of skills and knowledge; and is specified by a statement of purpose, learning outcomes, and strong evidence of need by industry, employers, and/or the community. They are smaller than a qualification and focus on skill development opportunities not currently catered for in the regulated tertiary education system."[36] These smaller credentials must meet industry or community demand, avoid duplicating existing qualifications, and undergo annual reviews to maintain alignment with market needs.
- The European Commission[37] states that "micro-credentials certify the learning outcomes of short-term learning experiences, for example a short course or training. They offer a flexible, targeted way to help people develop the knowledge, skills, and competences they need for their personal and professional development."[38] They are used to certify skills, knowledge, and competencies in a targeted field and can be standalone or stacked toward larger qualifications.

3. Developing a Framework to Meet the Diverse Goals of Micro-credentials

Problems with micro-credentials in Canada stem not only from semantics but also from the difficulty of capturing the purpose and value of qualifications that serve diverse goals. A pan-Canadian framework that recognizes the variety of goals is needed.



3.1 The Ecosystem of Micro-credentials

Learners, employers, providers and governments have diverse goals for micro-credentials.

Canadian learners who pursue micro-credentials have needs ranging from professional development and career progression to finding employment in a new field. Newcomers to Canada may be seeking recognition of their existing knowledge. Employees may require specific technical qualifications or certifications.

Employers have distinct needs regarding training/educational curriculum, skill sets, and learning outcomes. They want a simple way to verify claims of competency.

Each provider offering micro-credentials has unique priorities. Postsecondary institutions, including colleges and universities, typically create standalone micro-credentials, occasionally offering credits toward degrees. Professional associations focus on certifying skills for professional development, certification, and licensure. Industry trainers and private providers prioritize rapidly certifying specific, immediately applicable skills to meet workforce demands, often favouring skills over traditional academic measures. MOOCs aim for cost-effective, globally accessible micro-credentials that do not necessarily match any specific national standards.

Such a variety of goals among learners, employers, and providers requires a framework that can define the features of micro-credentials in a way that satisfies all. For instance, features like reliable quality control, ***stackability***, work integration, and clarity for employers all have value. But learners aiming for advanced qualifications (degrees) may prioritize stackability, while workers seeking to enter safety-critical fields may prioritise quality control. Conversely, other learners may focus on clear, straightforward, skills-based certifications that enhance immediate employability and are as easy as possible for potential employers to understand.

> **Stackability**: *Stackability* in micro-credentials refers to the way learners can connect them to macro-credentials like diplomas or degrees within larger educational frameworks. This enables micro-credential learners to achieve higher levels of education and/or more comprehensive credentials.
>
> Stackability can refer to *vertical stacking* that builds toward macro-credentials or *horizontal stacking* that broadens a learner's skillset or provides expertise in a specific area.[39]
>
> Macro-credentials are designed to reflect a progressive accumulation of knowledge and skills reflected in a curriculum, with higher levels building on lower levels. Vertically stackable micro-credentials therefore need to fit into the sequential levels of courses, aligning with the learning outcomes of a curriculum associated with a macro-credential. If a micro-credential is to be counted for credit toward an undergraduate degree, someone has to decide whether the skills it represents are equivalent to those taught in, for example, a first-year or fourth-year course. Thus, integration into a level of study requires a lot of complex information and slows the implementation of a new micro-credential.
>
> In addition, most colleges and universities assign a number of credit-hours to macro-credentials, and, if the micro-credential is not preassigned a credit-hour value, then an assessment through Prior Learning Assessment and Recognition (PLAR) will be needed if the learner wants to stack that micro-credential. PLAR is labour-intensive, with costs in time and money that create barriers to stacking.



All of these features (reliable quality control, stackability, work integration, and clarity for employers) pose challenges for development of unified standards within a framework. Addressing each of them may require solutions that are in tension with each other. For example, stackability necessarily adds complexity, but there is value to keeping micro-credentials as simple as possible for employers.

Defining and ensuring quality in education and training is inherently complex, as it involves diverse perspectives, standards, and expectations. Communities of expertise, such as professions and trades, are often asked to define quality based on their advanced, subject-specific knowledge of the field. But this step requires a regulatory apparatus (potentially an elaborate one) to identify the people who have a legitimate role to play in defining quality, developing consensus on the type of assessment, and ensuring that everyone who tries to practice in the field has completed such assessment.

Hence, it is necessary to distinguish between different types of micro-credentials which serve different purposes.

Features that are *sometimes* essential and *sometimes* nice to have

There are a series of nice-to-have attributes that are *sometimes* important to the value of individual micro-credentials but are not essential for all micro-credentials to have.

Stackability

As noted, some developers of micro-credentials tout the potential for stackable units of learning that can lead to larger qualifications. This potential remains largely unrealized in Canada.[40,41]

In theory, stackability might help learners with unconventional routes through postsecondary education, but there is not much evidence of actual demand for the feature. Demand might emerge if it were easier to navigate stacking, but stackability is not essential to all micro-credentials. It also implies some complexity as micro-credentials would need to be assigned a number of features, including a level and credit-hour value to make them compatible with most macro-credentials available in Canada.[42]

However, not all micro-credentials need to be stackable, as this can unintentionally disaggregate or devalue existing macro-credentials like degrees. While stackable micro-credentials may enhance pathways for career advancement, standalone micro-credentials can be equally valuable for learners seeking targeted upskilling in niche areas without pursuing a full degree.

Competency-based Learning

Micro-credentials are often spoken of in the same breath as competency-based learning. The idea would be to use a micro-credential to signify that a learner has acquired an ability that is useful in itself and may have labour market value.[43]

This model of linking micro-credentials with specific skills would require providers to be very clear in communicating the learning outcomes that they are claiming to impart – and for potential employers to make judgments about how credible they find this claim, which might be based on the clarity of the learning outcomes or the nature (or reputation) of the provider. Many employers struggle to clearly define their skill needs, which limits their ability to leverage even well-designed micro-credentials effectively. This can constrain the impact of micro-credentials, as employers need a certain level of specificity in understanding the competencies they want. In theory, standardization of skills profiles within a wider framework might be helpful. The activity of profiling the skills necessary for an occupation, manifested in micro-credentials, together could have value in focusing employers on their skill needs.

Career-oriented Learners and Employers Value Transparency

Many learners seek to enhance their skills to appeal to employers looking for a workforce equipped for fast-changing industry demands. Academica Forum (2024)[44] research identified that students' most common concern (82%) when considering taking up a micro-credential is whether it will be valued by employers. Further, the Future Skills Centre[45] concludes that "We must ensure that micro-credentials are more than just a piece of paper; they must have meaning and credibility in the labor market to drive true career mobility." However, in practice many human resource (HR) and hiring professionals are unclear on the competencies learners acquire through them. A 2021 study by the Society for Human Resource Management Foundation in the U.S. revealed that 54% of HR professionals found it difficult to determine what skills were measured by a given micro-credential and how those skills compare to traditional education credentials.



3.2 The Value of Frameworks

To be able to understand and use micro-credentials, stakeholders need to be able to access ***meta-data*** about them in standardized formats. As noted above, different kinds of meta-data are required, depending on the goal of the stakeholder. Data consistency is necessary to make micro-credentials understandable to learners, employers, and the gatekeepers of higher-level postsecondary (macro)credentials, who have diverse priorities. For example, a learner wanting to know whether a micro-credential will make them better able to operate a computer-controlled router and an admissions officer deciding whether someone should be admitted to an engineering degree will both want to understand what the applicable micro-credential represents, but one may care much more than the other about assigning a level of study. A qualifications framework is a way of systematically setting out the levels of meta-data required in different situations.

> **Meta-data**: In the micro-credential space, *meta-data* is a technical term for the set of data about the qualifications: who issued them, the subject of study, the number of hours of learning each represents, or how the learning was delivered. The term usually implies that the information should be presented in a format that is consistent among different qualifications so they can be easily compared.
>
> Fulsome meta-data can help ensure transparency by detailing a course's specific content, duration, prerequisites, assessment methods, and competency outcomes. It can assist learners, employers, and institutions in understanding the scope and value of a credential, facilitating comparison and evaluation. However, there is a cost to providing meta-data, both in processing the information and in complicating the records shared with stakeholders such as employers, who may value simplicity.

There is general agreement that there is a need for clear qualification frameworks to organize micro-credentials.

- Research conducted by the Micro-credentials and European Digital Credentials for Learning (2024) forum shows that uptake of micro-credentials by workers is limited by a lack of support from employers and uncertainty about recognition of credentials.[46]
- The 2019 Australian Qualifications Framework Review concluded that micro-credentials are increasingly being seen as the future of skills training, but for them to reach their potential, there must be greater clarity around their meaning, quality, and transferability.[47]
- A 2021 OECD Report on Skills and Employment found that the strength of micro-credentials lies in their ability to upskill and re-skill individuals quickly. However, the lack of a common framework continues to limit their broader acceptance.[48]

3.3 The Value of Experimentation and Innovation

One strength of the status quo, in which developers of micro-credentials are subject to few rules, is that it leaves space for innovation and experimentation. New entrants seeking to offer micro-credentials can introduce new ones without any regulatory barriers. This raises concerns about quality and consumer protection, but there is value to limiting constraints in order to allow providers to innovate quickly and nimbly to meet changing labour market needs, as well as other diverse objectives that might not be anticipated.

Leaving space for innovation has value. Burdensome regulations on all potential providers of micro-credentials could stifle innovation. Any framework must leave space for innovation and nimbleness while ensuring there is clarity in situations that require it.

Establishing a flexible national framework for micro-credentials in Canada would enhance transparency, standardization, and portability across provinces and sectors. It would ensure consistent recognition of learners' skills, supporting smoother career transitions and educational pathways. By aligning definitions and standards, such a framework would increase both learner and employer trust in the competencies that various types of micro-credentials certify, boosting adoption and impact. Furthermore, a cohesive system could promote collaboration among government, industry, and educational institutions/providers, better addressing skill gaps and fostering lifelong learning.



4. Assessing and Improving the Status Quo in Canada

Canada's frameworks fall short of what is needed because they do not distinguish among micro-credentials intended to meet different learner goals. No-one is stepping in to standardize micro-credentials or evaluate their outcomes.

4.1 Notable Provincial 'Frameworks' Referencing Micro-credentials

While Canada lacks a national framework for micro-credentials, several provinces have created micro-credential frameworks. Most of these provincial frameworks lack several features of the international frameworks outlined in Section 5, such as stackability or alignment with provincial qualification/levels frameworks.

- **Ontario** (PEQAB Ontario Micro-Credential Quality Assurance Framework):[49] PEQAB is advocating for a quality assurance framework for micro-credentials, particularly within Ontario's postsecondary education system. This collaboratively developed framework aims to provide transparency and ensure a consistent understanding of micro-credential programs. The framework offers a more detailed definition of micro-credentials, along with quality assurance processes, consistency of time requirements, and potentials for stackability within provincial qualifications frameworks. PEQAB's model offers significant recommendations and developments that could be readily developed into a national micro-credential standards framework.

  PEQAB proposes the Ontario Micro-Credential (OMC) as a formal qualification recognizing one or more employment-focused skills, competencies, or learning outcomes. Typically 12–40 instructional hours, OMCs could be delivered flexibly (e.g., competency-based, learner-paced, virtual, in-person, or hybrid). Learning outcomes and assessments would align with traditional credentials and could complement them. OMCs would be offered by institutions authorized as Designated Ontario Micro-Credential Institutes (DOMCIs) or through partnerships with such institutions. DOMCI status would be granted to providers via an Ontario External Quality Assurance Board review.

  PEQAB's proposed framework addresses several challenges, including a mechanism for clearly distinguishing providers who adhere to a set of rules and some attention to stackability. However, the framework is explicitly designed for universities and public colleges which already have formalized quality assurance processes in place. Other providers, even regulated private career colleges, can gain recognition only by partnering with them.

  In November 2023, PEQAB submitted its final recommendations for their Micro-Credential Framework to the Minister of Colleges and Universities. As of August 2025, there is no sign of this framework being adopted by the Ontario government, so the framework is not yet guiding practice.

  Ontario (eCampusOntario Framework[50]): Ontario's Micro-credential Framework, led by eCampusOntario, defines micro-credentials as short, focused learning experiences certified for specific skills. Digital badges and certifications are encouraged to facilitate easy sharing and verification by employers.

  An Open Competency Toolkit is designed to support institutions in defining job-relevant skills, promoting industry collaboration to align micro-credentials with workplace needs. An eCampusOntario Micro-credential Portal hosts over 2,500 courses offered by 50+ Ontario colleges and universities (but not the full spectrum of other micro-credential providers). The portal also indicates which of the listed micro-credentials have been approved by the Ontario government as eligible for support from the Ontario Student Assistance Program (OSAP), Ontario's student loan program.

  However, very few of the course descriptions mention methods for demonstrating competencies or offer clear pathways for stacking, laddering, or transfer.

- **British Columbia**: The Micro-credential Framework developed by the Government of British Columbia's Ministry of Advanced Education and Skills Training provides guidelines for the creation of micro-credentials within the province's postsecondary education system. Developed with input from public institutions, industry stakeholders, and government bodies, the framework requires assessment of micro-credentials (although not through accredited schemas). The framework limits micro-credential programs to 288 hours.

  An associated Micro-credential Toolkit offers a resource for developing micro-credential programs, including guidelines on industry collaboration, quality assurance, and design of stackable credentials to fill specific skill gaps.

  This framework sets out key characteristics but does not set rules for the specific meta-data providers need to share.

- **Nova Scotia**: The Nova Scotia Micro-credential Framework, launched in 2023, provides a structured approach to the development of micro-credentials that align with labour market needs. The framework "encourages" developers to include core meta-data. A key focus of the framework is inclusion, diversity, equity, and accessibility (IDEA), ensuring that micro-credentials are accessible to a wide range of learners.

  Unfortunately, there is no mechanism to incentivize providers to work within the framework.

- **Saskatchewan**: The Saskatchewan Guide to Micro-credentials, released in December 2021, provides guidance for developing micro-credentials across the province. It emphasizes core principles such as competency-based learning aligned with labour market demands and quality assurance ensured through collaboration between educational institutions and industry. Development and issuance models outline the required elements for micro-credentials, including learner details, issuing institutions, competencies gained, and endorsements from partner organizations.

  The Guide is a list of definitions, and there are no material incentives on providers to change behaviour.

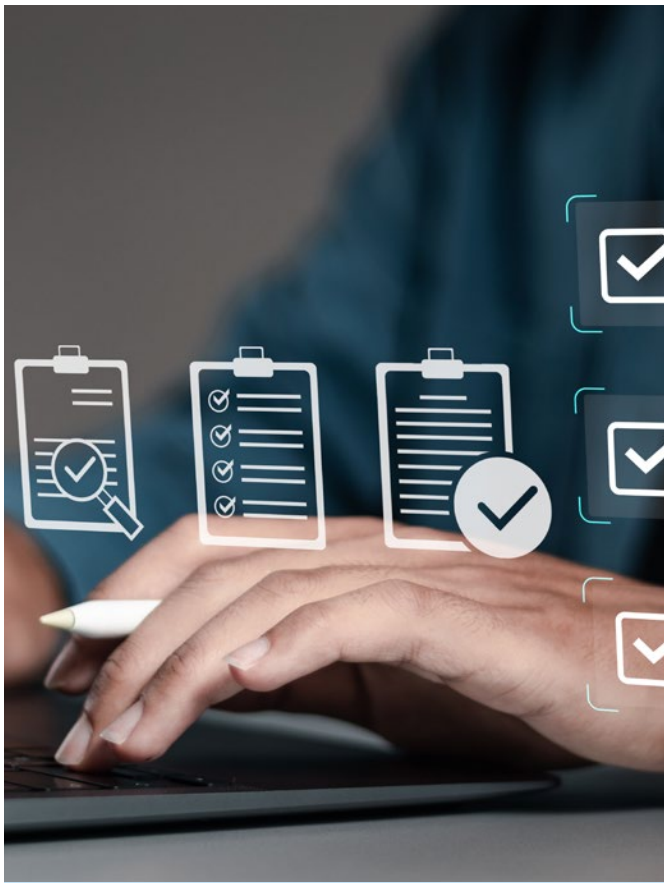


While these frameworks set out some definitions for meta-data, none of them are prescriptive about what data must be included. They do not distinguish different meta-data needs for micro-credentials serving different purposes. These Canadian provincial frameworks may encourage providers to include some form of summative assessment (meaning learners' skills/knowledge are evaluated at the end of a course to confirm acquisition/comprehension) but they do not require it, nor do they require assessment of the relative level of the skills/knowledge acquired. Further, there is no mechanism for enforcement of any criteria or control of what providers offer. Unless a learner reads the course's definitions and assesses other micro-credentials he or she may be considering against them, the data do not provide a quick way to decide among competing offerings.

Despite the existence of a few frameworks, most provinces leave the development of micro-credentials to individual public or private educational institutions, employers, and/or professional training organizations. On a national level, the Colleges and Institutes Canada National Framework for Micro-credentials, developed through collaboration between educational institutions and employers and introduced in 2021, includes a standardized definition of micro-credentials, guiding principles for flexible and industry-responsive education, and quality assurance mechanisms.

In many provinces, incentives such as funding schemes[51] have encouraged institutions to offer micro-credentials. For example, in Ontario the 2020 budget allocated $59.5 million over three years to support a micro-credentials strategy and extended provincial student financial assistance to cover approved micro-credentials.[52] In 2021, British Columbia allocated $9 million to expand micro-credential offerings[53] while Alberta assigned $5.6 million.[54]

When it comes to defining what a micro-credential is, how it should be recognized, and/or how it can be incorporated into existing degree structures, governments have been relatively quiet, effectively letting the market and arm's-length bodies decide.



4.2 Adding Value with Meta-data

Current Canadian frameworks do not include mechanisms to enforce meta-data standards, including the more stringent requirements needed to ensure stackability. This makes it difficult for both learners and providers to compare quality, learning outcomes, and likely value in the labour market. Proposed frameworks that might address these limitations are usually designed around the features of micro-credentials offered by formally accredited academic providers and are not likely to be a fit for learners seeking niche micro-credentials offered outside colleges and universities.

By providing clarity on learning objectives, method of instruction, and the rigor and form of assessment, improved meta-data can better serve the diverse users of micro-credentials. Here are three hypothetical but very plausible examples that illustrate how.



Enhanced Meta-data Helps Learners: Amelia is seeking a new job in digital marketing. She does not know what expectations potential employers will have or what micro-credentials will best set her up for success. She only has $2000 and one evening a week to spend on studies.

Enhanced meta-data offers her clear information about course content, duration, skill levels, assessment methods, and potential credit toward broader qualifications (or not). This transparency allows Amelia to easily compare courses across providers, understand which skills she will gain, and choose programs that align with her career aspirations and potential for employability.

As a result, she can better assess the relevance of different micro-credentials and their recognition by potential employers, improving her decision-making.



Enhanced Meta-data Helps Employers: Mohammed, a hiring manager at a tech firm, is trying to fill a role that requires specialized skills in data analytics. By accessing detailed meta-data on available micro-credentials, Mohammed can quickly identify which programs best match the competencies needed for the role. He can track whether new hires who hold these micro-credentials have been successful and potentially build a requirement for the qualifications into the job descriptions.



Enhanced Meta-data Helps the Development of Niche Qualifications: Aidana lives in rural Saskatchewan, where she has noticed that many older farmers are retiring and scrapping old, seemingly obsolete, tractors that they have been holding for many years. She knows there is a small but healthy community of collectors who are interested in buying some models of old tractors so long as they are in salvageable condition. Aidana thinks she could make money touring farms, appraising old tractors, and driving them across the province or into the U.S. for resale if she can learn enough about what she should be looking for in each class of tractor.

This is such a niche career that no college or university could justify running a certificate for vintage tractor evaluation. However, members of an online association of tractor enthusiasts are willing to test her knowledge and offer a certificate in tractor appraisal. They claim that, given how well-known their association is among tractor enthusiasts, this will reassure dealers of her knowledge.

Without guidance on what meta-data she should expect, Aidana does not know how to assess these claims and hence the likely quality and usefulness of this micro-credential. The group does not know what it needs to tell her to show its potential value. If the group had guidance on what meta-data is needed, Aidana could learn that this group includes all of the (very small number of) entrepreneurs who are making a living dealing in vintage tractors in Ontario and Quebec and that the group is recognised by the largest auction house in Regina, which a quick Google search reveals handles business from a number of collectors of vintage tractors across the Prairies. They might also advise her that the group member volunteering to conduct the test has twenty years' experience as a dealer.



4.3 Adding Labour-market Outcomes to Meta-data

While many providers of micro-credentials claim to add labour market value, limited data makes it hard to evaluate how much they actually do.[55] Although regulations in Canada require postsecondary institutions to track outcomes for learners who receive their degrees and diplomas, the quality, standardization, and accessibility of data on micro-credential's labour market outcomes remain inconsistent.[56] In fact, micro-credential providers are rarely required to gather outcome data at all. Without robust data, learners may pursue micro-credentials without a clear understanding of any alignment with industry standards or a sense of the outcomes they can plausibly expect.

Labour market outcomes could be collected through standardized surveys administered to learners. This data could be made accessible to authorized researchers, employers, and policymakers. To provide a more nuanced understanding of micro-credentials' labour market outcomes, this data could be linked with information on learners' previous education, demographics, and work experience, allowing for analysis of how outcomes vary across different learner profiles.

Potential of AI for Micro-credentials

Part of the problem of developing a framework is the sheer volume of information about all the different micro-credentials available that must be brought together. There is some precedent for using advanced computing techniques to assist.

In the Canadian context, AI is beginning to significantly impact the micro-credential sector, with organizations like eCampusOntario innovating and integrating AI into their educational tools. For instance, eCampusOntario recently launched an AI-enabled tool, SkillsFinder.ai,[57] designed to help learners identify their skills gaps and find relevant micro-credential programs to bridge those gaps. This tool is built using OpenAI's technology and is part of broader efforts to support upskilling and reskilling, responding to workforce demands and learner needs more efficiently.

AI is also helping to further personalize the educational experience, making it easier for learners to navigate the growing micro-credential landscape and for institutions to offer targeted learning opportunities. For example, Coursera has begun utilizing AI to streamline the delivery and assessment of micro-credentials. The team at Coursera[58] report that AI-enabled platforms make it easier to integrate industry-specific credentials such as those from Google and IBM into traditional education programs, supporting student retention and career readiness. These developments highlight how AI is transforming not just how learners engage with micro-credentials but also how these credentials align with employer needs, particularly in fast-evolving industries like technology and healthcare.



Existing Work on Labour Market Alignment

Pilot programs seeking to promote provider and industry collaboration and alignment within Canada include:

Quick Train: Quick Train™ is a Canadian initiative[59] designed to offer short-term, flexible training programs aimed at quickly upskilling or reskilling workers in high-demand industries. These courses are often offered by postsecondary institutions or industry partners and are designed to be completed in a matter of weeks. One example of a Quick Train course is a "Cybersecurity Essentials" program aimed at equipping workers with foundational knowledge to protect digital systems.

Digital Fluency Stackable Micro-credentials (Future Skills): This is a micro-credentialing initiative under the Future Skills Centre, offered in conjunction with Humber College, that provides learners with digital fluency skills that can be stackable to create a pathway to larger credentials. The courses focus on emerging digital competencies, and learners can accumulate credentials to build expertise in areas like data analytics and digital marketing. A sample course might cover "Introduction to Data Analytics."

EDGE UP (Future Skills): **E**nergy to **D**igital **G**rowth **E**ducation and **U**pskilling **P**roject is a reskilling initiative designed to help mid-career and displaced engineering and geoscientist workers from the oil and gas sector transition into digital technology careers. This program is a partnership between the Future Skills Centre and Calgary Economic Development (along with a number of postsecondary institutions) that provides training in areas like cloud computing and software development, with hands-on projects that align with industry needs.

4.4 Trademarking Quality-assured Micro-credentials

In December 2023, PEQAB[60] presented its Final Report on Ontario's Micro-credential Quality Framework, following wide consultations with over 200 individuals and organizations. PEQAB concluded that a key ingredient in setting standards for micro-credentials would be the establishment of a legally protected term, defined by a trademark.

Key elements of the framework include offering institutions two pathways for micro-credentials: (a) non-quality assured micro-credentials aimed at market acceptance, and (b) Ontario Micro-Credential (OMC) quality-assured micro-credentials that are trademarked and meet more rigorous standards. In PEQAB's model, OMC micro-credentials would undergo institutional quality assurance and be registered in databases like MyCreds™,[61] with the potential for some to also be stacked toward credit-bearing programs.

Details of this proposal have been subject to some criticism. PEQAB's proposal excludes non-educational providers such as IBM and Google from the proposed Ontario Micro-Credential (OMC) trademark. These employers can only participate if partnered with public institutions, which can restrict or limit industry engagement and collaboration. Additionally, while the government originally envisioned micro-credentials that meet specific industry needs, PEQAB's framework does not incorporate competency-based assessment models[62] that might have value in aligning credentials with workforce demands.

However, the idea of using a trademark to grant authority to define the key properties of micro-credentials has not been rejected. At the time of this writing, the provincial government has not yet publicly endorsed the idea and this is a strategy that any actor with the credibility to do so can legally pursue.



5. What Works Elsewhere?

There are frameworks that bring clarity and coherence to micro-credentials in use in other countries. International examples of frameworks exist on a continuum, including frameworks that go to a higher level than any of the frameworks currently in place in Canada. These higher-level frameworks have costs, including expenses to engage skilled analysts in evaluation.

5.1 Frameworks in Other Countries

In Canada, the term *framework* in the context of micro-credentials is used loosely. A framework that addresses the problems outlined in Sections 3 and 4 needs to include well-defined levels of achievement, standardized assessment methods, and, ideally, makes space for a coherent system for stacking credentials toward larger qualifications.

While Canadian micro-credential frameworks are still developing or awaiting government action, several international frameworks incorporate clear levels, assessments, and pathways for stacking credentials.

New Zealand: New Zealand was the first country to establish a national framework for micro-credentials, leveraging its existing New Zealand Qualifications Framework (NZQF).[63] The New Zealand Quality Assurance (NZQA) agency regulates qualifications from secondary schools to doctoral degrees within the country's education system and has now added micro-credentials. The NZQF classifies all tertiary education programs into ten levels,[64] each with three qualitative descriptors of the competency a learner is expected to demonstrate on completion of a qualification at that level.

Each competency consists of three components: knowledge, skills, and context in which these can be applied and executed. The level of study is tied to a descriptor for each. For example, a Level 3 Certificate requires:

- "some operational and theoretical *knowledge* in a field of work or study;"
- the *skills* to "select and apply from a range of known solutions to familiar problems" and "apply a range of standard processes relevant to the field of work or study;" and
- the ability to *apply* these in contexts with "limited supervision," "requiring major responsibility for own learning and performance," "adapting own behaviour when interacting with others," and "contributing to group performance."

By contrast, a Level 9 Master's Degree reflects

- "highly specialised *knowledge*, some of which is at the forefront of knowledge, and a critical awareness of issues in a field of study or practice;"
- the *skills* to "develop and apply new skills and techniques to existing or emerging problems" and "mastery of the field of study or practice to an advanced level;" and
- "independent *application* of highly specialised knowledge and skills within a discipline or professional practice" and "some responsibility for leadership within the profession or discipline."

Micro-credentials must certify a clear set of skills, demonstrate demand from employers or the community, avoid duplicating existing qualifications, and undergo annual reviews to stay aligned with industry needs.

Universities in New Zealand self-regulate their micro-credentials, while other providers undergo a more rigorous approval process by the NZQA. As of 2024, 424 micro-credentials had been approved, primarily to educational institutions, including New Zealand's equivalent of private career colleges. The regulation process varies by provider. Universities in New Zealand can offer micro-credentials freely, provided they maintain strong internal quality controls. However, these credentials are generally capped at level 8 (equivalent to an Honours Bachelor's degree in Ontario) on the NZQF; a batch of micro-credentials will never be equivalent to a graduate degree. For non-university providers, the NZQA requires the issuer to provide detailed meta-data, curriculum, and self-assessment for approval, including evidence of employer or community need and assignment of a credit value and level to the course.

Micro-credentials can be assigned to levels on this framework, which in principle allows them to be used to meet some program requirements at colleges and universities. This work needs to be done by skilled assessors and can be labour-intensive; it is not (yet) suitable work for AI. The NZQA's Quality Assurance division, with approximately 30 trained assessors, handles applications, aiming to complete the process within ten business days.



Australia: Like New Zealand, Australia has recently adopted micro-credentials, introducing the National Micro-credentials Framework in 2021. The framework defines micro-credentials as certifications of assessed learning, which can include modular higher education courses and industry-based training. The framework emphasizes alignment with industry needs and incorporates standardized meta-data to ensure employer recognition. The *Micro-credentials Marketplace (MicroCredSeeker.edu.au*[65]), which is still evolving, currently only lists publicly offered micro-credentials. As of 2024, 593 courses are available under this framework.

Europe Commission Model: The European Commission is promoting harmonization across Europe, issuing guidelines for the design, description, and mutual recognition of micro-credentials. Beyond definitions, the guidelines outline a set of common features or standard elements that define a micro-credential in the *European Approach to Micro-Credentials and European Digital Credential for Learning*.[66] The Commission has outlined standard elements[67] in a common format for describing micro-credentials. This data model is available as an open standard, available for use by any providers, where relevant, and could support better interoperability and easier exchange of data on micro-credentials. These features are divided into mandatory meta-data and optional elements.[68]

The European Commission restricts access to its portal to micro-credentials that meet the criteria around transparency of meta-data.

Meta-data recommended by the European Commission	
Mandatory elements	Identification of the learner
	Title of the micro-credential
	Country/Region of the issuer
	Awarding body
	Date of issuing
	Learning outcomes
	Notional workload needed to achieve the learning outcomes (in ECTS credits, wherever possible)
	Level (and cycle, if applicable) of the learning experience leading to the micro-credential, if applicable
	Type of assessment
	Form of participation in the earning activity
	Type of quality assurance used to underpin the learning activity
Optional elements, where relevant (non-exhaustive list)	Prerequisites needed to enroll in the learning activity
	Supervision and identity verification during assessment
	Grade achieved
	Integration/stackability options (standalone, independent micro-credential/integrated, stackable toward another micro-credential)
	Further information

While a Canadian framework might label different data as mandatory, the possibility of dividing meta-data elements does create space for creativity.

Singapore: SkillsFuture Singapore,[69] a government initiative, unites various stakeholders to promote lifelong learning and workforce training. Its key feature is the development of skills frameworks that outline career paths and the necessary skills across 33 industries, guiding both employers and workers. While not explicitly labeled as micro-credentials, SkillsFuture courses serve a similar purpose by offering short, workforce-aligned training programs to help individuals upskill or transition to new careers. Offered by polytechnics, universities, and other providers, these courses focus primarily on digital skills and include both credit-bearing (stackable toward degrees) and non-credit options. By 2022, over 42,000 micro-credential courses were completed in Singapore.

Singapore is an outlier in the sense that its version of micro-credentials is not aligned with specific business needs but rather aligns with nationally established, occupationally-specific skills profiles. This alignment offers clear advantages to learners, as completing a micro-credential provides recognition of skills applicable to all jobs in a specific occupation and level across the country rather than being limited to a single employer's needs. However, this model requires sectors to agree on skill profiles for various occupations and seniority levels before educational institutions can tailor their courses accordingly. Members of a sector with subject-specific expertise who can legitimately speak to its skill needs are needed to establish the criteria. Achieving this level of coordination is more feasible in countries with strong, long-term cooperation between government, industry, and education sectors.



Select Private Sector Approaches

Private-sector organizations have historically provided internal training and certifications primarily aimed at helping employees advance within their own companies. In Canada, major corporations such as McDonald's and the chartered banks have established internal training programs that issue credentials, though these are typically not recognized outside their respective organizations. However, in the technology sector, companies like IBM and Google have developed micro-credentials that are gaining acceptance in the wider job market and can be accessed by non-employees.

IBM, for example, offers over a thousand badges through its Training Division, which validate specific skills in areas like Analytics, Business Operations, and Cloud Computing. These badges are often free and can be earned through competency-based online tests. Additionally, IBM offers over 150 certifications that consist of short courses available via platforms like Coursera, though these do not typically stack into larger qualifications. Similarly, Google provides career certificates in high-demand fields such as IT Support, Data Analytics, and Project Management, which can be completed in three to six months on Coursera for around $39 per month.

These credentials validate specific, in-demand skills and have been successful in the tech industry, where competency-based assessments with unambiguously right and wrong answers can be conducted at scale, though they generally do not ladder into formal degrees or diplomas.



5.2 Lessons from the International Landscape

The examples discussed in the preceding section reveal several key insights.

- First, ***frameworks can be effective*** in standardizing micro-credential offerings, promoting transparency, and supporting wider recognition across industries and educational institutions. For example, frameworks in New Zealand and the European Union have increased clarity and portability of credentials, aiding both learners and employers.
- Second, ***frameworks built around competencies*** enable alignment with specific skills and job market demands, potentially facilitating the creation of competency-based micro-credentials that are flexible and industry-relevant.
- Third, ***assigning micro-credentials to levels of study*** is beneficial for stackability and integration into larger qualifications, but it also introduces complexities and risks for devaluing traditional diplomas and degrees, as well as significant costs (increased investments). It requires dedicated staff and increases administrative costs, as seen in New Zealand's regulatory system, which has allocated assessors specifically for micro-credential evaluations.

  Further, with such a diverse ecosystem of providers, each with their own unique goals, purposes, and processes, there will be many who do not desire or require alignment with existing levels of study at postsecondary institutions. There is a risk of progress being held up by complexities around stackability that are not relevant to many potential learners. Careful consideration is required to balance the benefits of stackability with maintaining the integrity and value of existing macro-credentials, along with evaluating learner demands for this type of micro-credential or provider investments to meet these more onerous standards requirements.
- Finally, making a judgment about the *actual quality* of a micro-credential, or the specifics of how it should be assessed, might be desirable in many situations but is not essential to a framework. The examples above do not include expert judgment of the quality of learning. Judgments about quality tend to be assigned to communities of practice whose members have shown a depth of knowledge in a specific domain and been accepted as peers by others – physicians are seen as having the capacity to judge the quality of other physicians, plumbers can legitimately judge the work of other plumbers, and so on. Consultation with such communities can be a part of a framework, as in Singapore; it is possible to develop a framework that can incorporate expert judgment without building any expertise in the subject matter into the process. By analogy, the International Olympic Committee members can recognise Olympic medalists in sports as diverse as boxing and figure skating without having expertise in boxing or skating. They simply allow experts to deal with the minor details of the rules by which medalists are selected.



6. A Pan-Canadian Framework

"It's not just the labour market that's in flux; learner needs have evolved too. Education is ongoing and iterative throughout our lives. How is it that we still offer the same product and service to a market that has fundamentally shifted? Maybe it's time we changed our business model."[70] Robert Luke, CEO, eCampusOntario

> **Canada needs a framework for micro-credentials that transparently distinguishes among micro-credentials intended to meet different learner objectives. It needs to incentivize providers to share meta-data that enables learners to make effective choices.**

The central challenge currently confronting micro-credentials in Canada stems from the lack of clear, consistent, and predictable communication of information about the micro-credential that is simple enough for non-specialists to follow with minimum effort. This issue can be addressed by categorising micro-credentials into a framework that uses trademarked terms only available to micro-credentials that meet certain standards. Any provider aspiring to use this trademark must commit to gathering data on learner outcomes and be open to an experiment in using computing power to reduce the labour needed to organize the framework.

6.1 Categorize Micro-credentials According to their Outcomes

Stakeholders can be distracted by the diversity of educational offerings that could be covered by the term *micro-credential*. For clarity, micro-credentials could be categorized into four groups reflecting their outcomes.

These categories are not hierarchical or mutually exclusive. Within the wider universe of micro-credentials, a broad, protected category that requires transparent and consistent rules for the meta-data provided to learners will be needed.

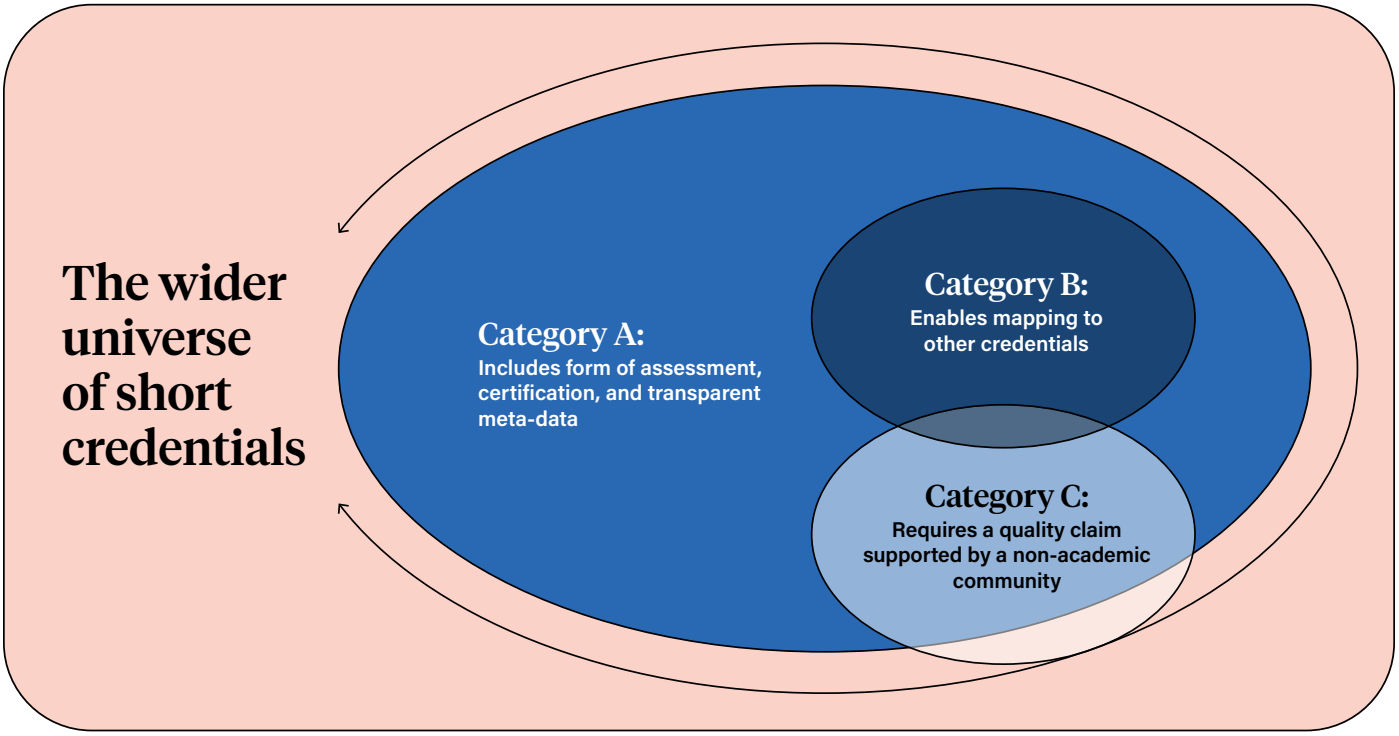
Micro-credentials offer a space for creative ways of delivering education quickly, offering a freedom for experimentation that will always be welcome. There are many situations in which users do not need to rely too much on data about a micro-credential, and other situations where users only need to verify the provider. Existing Open Badging standards already address this.

However, many micro-credentials perform functions for learners, employers and other educators that require clarity about what learning they (claim to) represent. This report proposes a **Category A** micro-credential which is required to provide a base level of meta-data.

Further, there are situations in which educators, learners, and employers need evidence about how micro-credentials fit into a larger system. Educators guard access to advanced courses to ensure only qualified applicants who stand a reasonable chance of success are admitted. Although assigning levels of study to micro-credentials is typically an exercise that makes sense in the context of stacking into degrees and diplomas, there will be situations in which employers need a heuristic to know if alumni have sufficiently advanced knowledge to perform a particular skill or task. For such situations, a clearly defined **Category B** micro-credential can provide this heuristic.

Finally, there will be other situations in which it is critically important that the quality of learning certified by a micro-credential be backed by authorities on the subject being studied, for example, if it is certifying the ability to do something safety critical. This kind of quality control is more complex to build into a framework, but it is also not necessary for the vast majority of micro-credentials. These micro-credentials can be assigned to **Category C**.

A Framework for Organizing Micro-credentials



Many micro-credentials only need to meet generic goals of signaling some form of learning that learners and providers believe has value and do not need to rely too much on verifying to others, perhaps because the provider has a well-established brand identity such as that of a well-known university. These form the wider universe of micro-credentials currently available in Canada. These can simply be left alone.

Category A requires greater standardization of the data providers make available to learners. It encompasses Category B and most of Category C offerings. An education system incorporating micro-credentials will be successful if it gives learners the option of pursuing micro-credentials that meet, and are recognised as meeting, these criteria:

- some form of assessment that is transparent to potential learners, employers, and other interested parties;
- a certificate that would be available on a shared online platform of the type offered by MyCreds,™ QuickTrain,™ and other providers[71].
- a clear, publicly accessible list of the features of the micro-credential that must include:
  - the provider;
  - title;
  - any required prerequisites;
  - an approximate indication of learner effort (time commitment[72]);
  - the learning outcomes, expressed in skills and abilities;
  - any expiry date that may apply; and
  - a commitment to gather data on learner outcomes once there are sufficient alumni to do so.

The list could also include features such as:

- whether the micro-credential has been approved by a professional body (for example, for continuing professional development);
    - whether professional associations consider the credential to have an expiration date;
- mode of delivery (synchronous, asynchronous, hybrid); and,
- duration (in days).

The benefit of Category A to providers would largely be in discoverability and transparency to learners.

Category B micro-credentials would include Category A data and have additional value in that they could map onto macro-credentials. They would need to also include:

- an indication of the level of study relative to established and widely familiar macro-credentials (such as "honours-degree-level");
- any other education that the course qualifies learners to pursue;
    - This could take the form of formal agreements for transfer or precedents for multiple alumni gaining places on other programs.

In some situations, these should include a credit value.

These features, which are not critical for Category A (or all credentials in Category C), make it possible to create micro-credentials that can be stacked into existing macro-credentials.

Category C micro-credentials would need an external imprint of quality from a non-academic community. For example, a certificate of proficiency in hypnotherapy could be recognised by other hypnotherapists, or a certificate in philately by other stamp collectors and stamp dealers, but not necessarily by any college or university.

These micro-credentials would also have:

- a specific form of assessment, whether peer review, examination, or practical performance;
- a clear identification of the community endorsing them; and,
- some evidence that this community has the legitimacy to set standards.



There are many fields in which having some signal of competence has value, but the community that determines what a quality education should look like is at least partly outside the formal structures of colleges and universities. The first step in defining what quality looks like would be identifying a community that is considered to have legitimate expertise. There is likely to be significant diversity in this category, depending on the community endorsing the micro-credential. Therefore, developing this category would require further work, but it is not essential that Category C exist in order for the rest of the framework to have value.

An organization would need to take ownership of this framework of micro-credentials, perhaps through trademarking a term that distinguishes A, B, and C micro-credentials from the wider universe. Providers could be incentivised to have their micro-credentials meet the requirements by, for example, making inclusion in the framework a prerequisite for access to public funding – such as OSAP or the Canada Training Credit – or making inclusion on government-sponsored micro-credentials portals dependent on meeting the standards. Some portals (for example, eCampus Ontario's portal) already have minimum requirements for meta-data, though the commitment to gather data on learner outcomes would be new.



6.2 Distinguish Category A, B, and C Micro-credentials from the Wider Universe

PEQAB[73] has pointed out that there is no need for government to be directly involved in regulating micro-credentials since the *Trademarks Act* allows anyone in Canada to protect a unique form of words that is used in business, broadly defined. Although this point was framed in the context of a policy advice paper for the Government of Ontario, to date the Government of Ontario has not taken steps to advance this idea and there is nothing about it that requires that the government be the entrepreneur creating the term of art in question. This raises the possibility of creation of a term of art for micro-credentials that meets specific criteria, such as "Ontario [or other Province or Territory] Micro-credential."[74] "Canadian Standard Micro-credential," "MyCred Micro-credential," or any other form of words that appeals to learners.

This approach would enable a body interested in preserving educational standards to exercise some level of control and develop a brand identity. It would not require government intervention. The initiator would face three major obstacles, none of which are a good argument for the current anarchy:

- Enforcement of the trademark would rely on civil litigation against anyone who used the label without permission, which could become costly.[75] However, the costs of alternatives, such as pursuing legislation, would also be considerable.
- Enforcement would rely on violators being subject to Canadian jurisdiction, which is not necessarily the case for all educators, especially when micro-credentials are frequently offered online. However, this is also true in the status quo.
- There is a possibility of duelling standards if multiple trademarks are created by different standardization entrepreneurs. That said, a natural monopoly will likely emerge in this field, given the strong network effects in this area – provided that the requirements are clear and there is no danger of confusing one with another.



Voluntary Accreditation

An alternative approach to trademarking would be to rely on *voluntary accreditation*, a model that is already common in postsecondary education. For example, Co-operative Education and Work-Integrated Learning Canada (CEWIL) operates such a system for work-integrated learning, maintaining a list of placement programs that have been inspected and approved by CEWIL-appointed experts.

This report is more sceptical of this approach specifically in the context of micro-credentials, because potentially significant amounts of money are at stake. It raises the possibility of providers misrepresenting their offerings as having the features of a category when in fact they do not, since most learners are not likely to be equipped with a list of required features when choosing a credential and may not realize the limitations of their choice until much later (for example, when they need to demonstrate a skill to a future employer). A legally enforceable label allows for the possibility of one clearly delineated heuristic that will become familiar to potential learners and employers. Confusion is the enemy of this kind of assurance. Both trademarks and voluntary accreditation offer marks assuring certain features, but registering a trademark provides legal protection not only against direct imitation but also against the use of other marks that could easily be confused with the trademark.

6.3 Experiment with AI to Create a Leveled Framework from the Ground Up

A longstanding theme from research into micro-credentials is how cumbersome and subjective specifying learning outcomes is for instructors. Many institutions require instructors to identify a list of competencies/skills that learners will be able to do or understand if they successfully complete a course of study, and, in theory, degrees and diplomas represent mastery of all the knowledge and skills delivered by the individual courses within them, as well as some synergies when these are built into a coherent curriculum.

In practice, Canada's tradition of individual instructors having considerable autonomy in their teaching means that they define the outcomes from their courses in their own terms. Professors are not required to use standardized vocabulary or taxonomies to communicate these outcomes.

These inconsistent and subjective learning outcomes create challenges for accurately assessing students' skills and knowledge. When students want to transfer a credit obtained in one college or university to another, a highly skilled academic has to read the syllabus and make a subjective judgment about whether there is sufficient overlap to grant a transfer credit, a process that is slow, expensive, and lacks transparency.[76]

This lack of standardization will also make it difficult for employers and institutions to recognize the value of micro-credentials, which are similarly non-standardized. The costs of reading thousands of sets of learning outcomes and incorporating them into a framework would be huge. Manually reviewing and standardizing diverse learning outcomes is time-consuming and expensive, often requiring expertise to reconcile differences. As noted, New Zealand has a system for assessing each micro-credential and integrating it into the NZQF, which requires this relatively small and unitary country to employ 30 specialist assessors. No actor within the Canadian postsecondary systems seems to be stepping forward to take on this role, nor is it clear that anyone has sufficient long-term funding available to do so.



Modern computing power may solve this challenge. The learning outcomes from existing micro-credentials are available in machine-readable text files, as are many university and college syllabi. They are not sensitive data. Advances in computer software may help streamline the process, which is fundamentally an issue of pattern recognition. If a micro-credential using terms such as "advanced knowledge of Bayesian analysis" uses the same text as a university course advertising the same learning outcomes, and has similar pre-requisites, then there is a prima facie case that it should be assigned the same level within a framework.

At present it is not clear that there will be enough consistency of patterns in micro-credential meta-data to achieve this. However, the idea warrants exploration. If it is possible to avoid the pitfalls of individual expert review that bedevil credit transfer systems, then some of the potential of higher-level micro-credentials will be realized. Commonalities in learning outcomes may allow creation of a framework from the ground up more cheaply than having a central authority set definitions and then require micro-credential developers to conform to them.



6.4 Incentivize Gathering Data About Outcomes

While data on the labour market outcomes associated with completion of specific micro-credentials is missing, along with data on the demand of learners for this information, what evidence is available about broad categories of micro-credentials suggests that their labour market impact is complex, and it cannot be assumed that micro-credentials always benefit learners. Without good data, there is a risk that learners who expect that completion of a micro-credential will improve their lives will be disappointed.

The classic way of conceptualizing the impact of a credential is to look at whether holders earn more money than they otherwise would have done, but, depending on the objectives of the micro-credential, there might also be a case for looking into other forms of social value such as enabling holders to take seats on boards of governance or occupations of social value.

The creation of clearly differentiated categories of micro-credentials that can be legally distinguished from the arena of open experimentation creates the possibility of incentivising providers to help gather data on outcomes if they want to be included in databases, receive public financial support, or be recognised as part of the protected (trademarked) category of micro-credential. The owner of the trademark can make these decisions.

These incentives would not necessarily mean that the providers would need to bear the costs of research. Instead, providers could be required to obtain consent from learners to share their contact details or identifying data with researchers for possible follow-up. There is already precedent for this in the postsecondary system, with most provinces requiring public (and some private) colleges and universities to make alumni contact details available to government so that graduates can be surveyed on their post-graduation careers.

With micro-credentials, there could be a lighter-touch approach, perhaps with only a sample of alumni from the most commonly pursued micro-credentials being contacted. Any sampling approach would need to ensure wide representation, but there would be practical limitations on the budget, and smaller micro-credentials may simply not have enough learners to yield a good sample.

In addition, data on outcomes could give the people who are ultimately intended to benefit from micro-credentials, such as employers of workers who hold them, an opportunity to challenge the learning outcomes that the providers are claiming by publicising concerns. Transparent feedback is essential. Given the mixed evidence on the labour market impact of some short courses, it is especially important that it be possible to gather data. If micro-credentials really are providing value to learners, illustrating this will be a key part of building a coalition which can confidently advocate for them. Similarly, if some micro-credentials are yielding strong labour market outcomes and others are not, it is important to understand what it is about those micro-credentials that explains those outcomes.

7. A Potential Future with Transparent Micro-credentials

A coherent framework for micro-credentials could enable a future in which learners can choose among:

- diverse and flexible micro-credentials available today; and
- "Canadian Standard Micro-credentials" (or some other brand name) that have standardized descriptions, comprising:
  - highly regulated micro-credentials designed to be stackable into larger macro-credentials such as degrees; and/or,
  - micro-credentials carrying an imprint of quality from a recognised community of non-academic stakeholders.

Many micro-credentials would continue to be vocationally targeted, and the owner of the trademark could require providers who wish to use the trademark to gather evidence on how past recipients of the more common micro-credentials have fared in work and further education.

This future would create flexibility for learners, especially benefitting non-traditional learners.



Consider the hypothetical benefits of this future for Sally. With family responsibilities in rural Saskatchewan, Sally went straight into full-time work for a local farmer after high school. She has always taken an interest in irrigation and learned a great deal about ditches on the job. She was able to learn about irrigation techniques by accessing some non-credit community education courses at a local college. She occasionally helped with ongoing business management when her employer was sick.

Sally sees a posting for a job at a local farm credit agency related to financing irrigation projects. It involves evaluating whether farmers should receive loans for field irrigation and what techniques they should use. She is informed that the agency has a firm requirement to demonstrate "college-level" skills, but there is no need to hold a diploma. Working in the evenings after her children are asleep for two weeks, she is able to quickly complete a Category B micro-credential that is recognised as reflecting the same learning outcomes as a second-year college bookkeeping course, even though it is not transferable for college credit (and does not need to be for Sally's purposes).

Based on combining these unusual qualifications, Sally now has a niche career that brings her a reasonable income. She has the resources and employer support to explore other forms of postsecondary education that might (or might not) be relevant to this career.

Making micro-credentials more transparent will not render multi-year diplomas and degrees obsolete or lead to their congealing into uncoordinated modules. Micro-credentials are often pursued by graduates of other postsecondary programs and complement existing qualifications. However, macro-credentials (degrees and diplomas) are not only expensive for learners but also require a certain number of learners every year for their delivery to be financially viable. Micro-credentials, which can be developed more quickly and economically, lend themselves to preparing learners for specialized niches where workers can prosper.

Micro-credentials offer distinct opportunities to meet diverse learner needs in a rapidly changing labour market. Quickly providing people whose skills do not quite match demand or who may be leaving declining industries, or who are newcomers to Canada with new training and education should allow access to careers in which they can be successful with much less friction than if they had to pursue years of full-time study. This should increase Canada's economic productivity by helping people move to the positions that need them.



A clear framework for categorising and assessing micro-credentials would help make this future possible.

Most of the work needed to create such a framework can be done right now by a credible and entrepreneurial group working to coordinate the efforts from existing organizations and interested in providing a public service. The first two categories (A and B), which rely on standardizing the meta-data that is shared about micro-credentials or mapping them onto an existing qualification framework, can be created and protected using information and resources that are widely available.

One thing the framework described would not do is attach a signal of quality to micro-credentials. As discussed earlier, judgments about quality are normally made by members of communities that are recognised as having a legitimate claim to expertise. In order to incorporate judgments of quality, it would be important to identify a knowledgeable community that is seen as having a legitimate role in assessing quality. Only then could custodians of the framework begin to establish what kind of quality control that community might find satisfactory. Establishing which community is seen as legitimate would require research. However, there is no need to delay the rest of the framework in order to incorporate quality markers. A great deal could be achieved by simply setting meta-data requirements for different categories of micro-credentials.

Key stakeholders in the sector are willing to innovate in this area. There is funding available from government. There is demand from learners. There are many providers with experience in developing and delivering micro-credentials. What remains necessary is a national organization to lead and coordinate the effort.

Endnotes

(1) *Upskilling* refers to the process of acquiring new skills or enhancing existing ones to stay current and advance within a profession. *Reskilling* involves learning new skills to transition into a different role or industry, often in response to job displacement or changing workforce needs. *Retraining* is a form of reskilling that provides structured education or training to help individuals shift careers or adapt to new job requirements.

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(62) This does not mean that the framework is incompatible with competency-based assessment.

(63) A full listing of the New Zealand Qualification Framework Levels can be found at https://www2.nzqa.govt.nz/qualifications-and-standards/about-new-zealand-qualifications-credentials-framework/level-descriptors-nzqcf/

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(71) There may be a few rare scenarios in which the identity of a micro-credential holder needs to be kept secret, for example, if there were concerns about stalking, but in most cases this data would be accessible to the general public as, for example, membership of professional bodies is already. The point of a credential is to publicly certify mastery of skills and knowledge and is not usually a secret.

(72) While not essential to this model, it would make sense in view of the increased use of synchronous learning for providers to survey their alumni on how much time they actually took, rather than relying on rough estimates.

(73) PEQAB. Ontario Micro-Credential Quality Assurance Framework: Harnessing the Potential Report, Accessed June 9, 2025. https://peqab.ca/wp-content/uploads/_docs/Publications/OMC%20FINAL%20REPORT%20POSTED.pdf

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