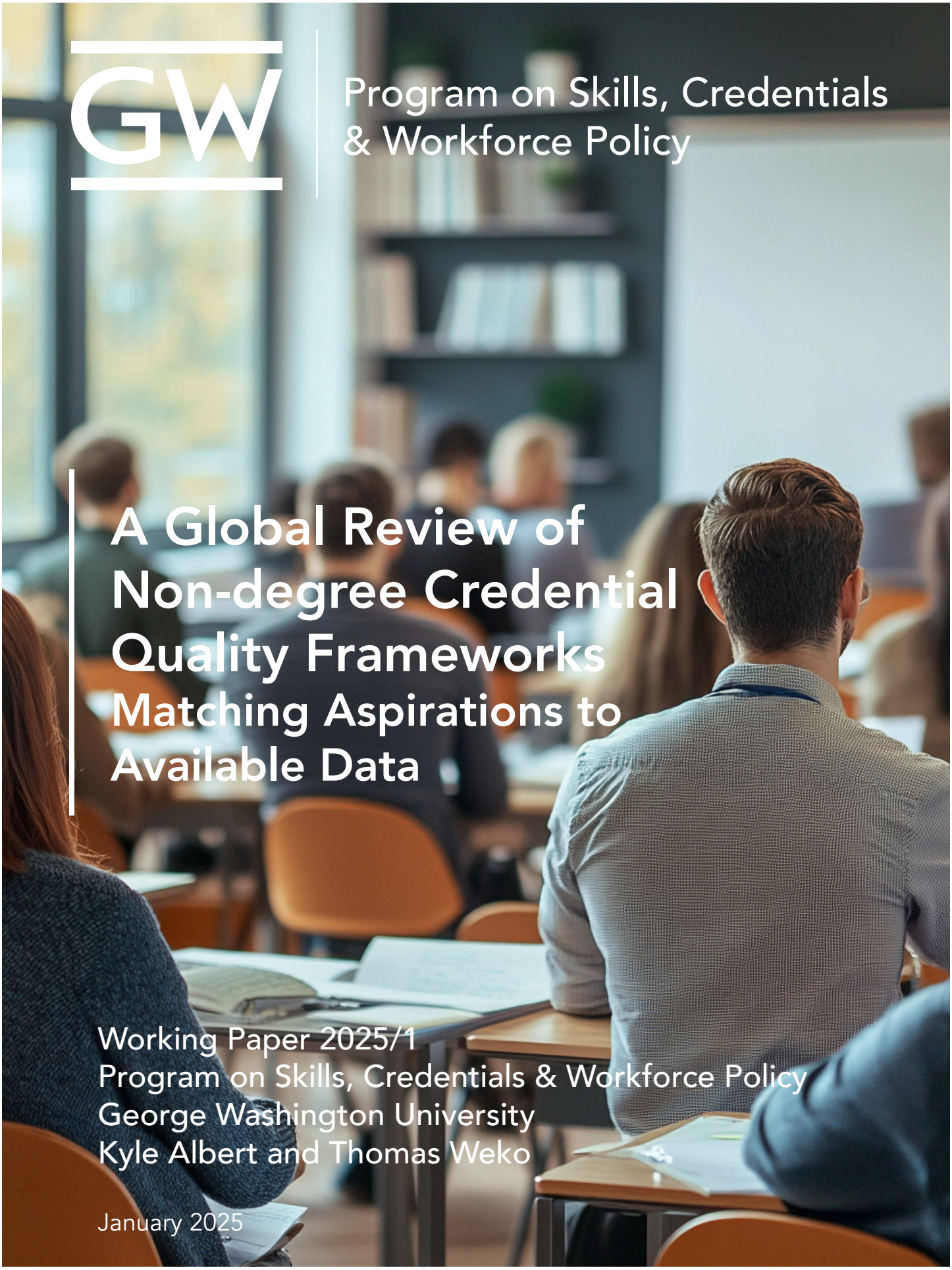

Program on Skills, Credentials & Workforce Policy

A Global Review of Non-degree Credential Quality Frameworks

Matching Aspirations to Available Data

Working Paper 2025/1
Program on Skills, Credentials & Workforce Policy
George Washington University
Kyle Albert and Thomas Weko

January 2025

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INTRODUCTION

Learning and its credentialing outside of traditional degree structures – including short-term certificates, industry and professional certifications, microcredentials, badges, and apprenticeships – comprise a swiftly expanding part of the education and training landscape. As these "non-degree" or "alternative" credentials have grown, researchers, equity-focused policy analysts, and journalists have expressed increasing concerns about the quality of their provision and the benefits these credentials provide to learners.

Writing in the *Washington Monthly*, one journalist derided Google Career Certificates as mere "Participation Trophies" (Kim 2023), while the higher education trade press has observed that the skills signals sent by microcredentials "confuse employers, colleges and learners" (D'Agostino, 2023). The New America Foundation finds that "short-term credentials are not always a sure bet for workers and could wind up leaving students of color in particular out time and money without improved prospects for work or income" (Ositelu et. al. 2021). Quasi-experimental research has pointed to ephemeral benefits obtained by learners who obtain "rapid" (1-6 credit) community college non-degree credentials (Darolia et. al. 2023). Concerns about quality and benefit have been heightened because alternative credentials have flourished outside of the institutional arrangements meant to guide learners engaged in degree-level post-secondary education (accreditation) and job training supported by state and federal funds (Workforce Innovation and Opportunity Act (WIOA) regulations), and to assure the quality of that provision. Quality concerns are likely to only accelerate as a larger array of non-degree credentials are likely to be eligible for federal funding in the United States through the expansion of Pell Grant eligibility to short-term, workforce-oriented programs, which is widely expected to be a priority for the second Trump administration (Schermele 2024).

Foundations, researchers and professional associations in the United States have sought to fill this gap, in part by developing quality frameworks meant to guide the creation and offer of non-degree learning. The quality frameworks they have established are schemas that systematically map out criteria that non-degree credentials should satisfy to meet the needs of learners who acquire credentials, the providers who design and deliver non-degree credentials, and those who invest in the funding of credentials, whether employers or public officials. They indicate what type of evidence should be used to demonstrate attainment of these criteria and, infrequently, what metrics should be calculated from these data.

There are three important developments in parallel to these quality frameworks that have the potential to complement their work. The first, led principally by education technology firms and credential and transcript platforms, has created open-source schema that seek to establish an ecosystem in which all education, training and employment data, including non-degree credentials, are interoperable. Important examples include the 1EDTech Consortium, host of the 1EDTech Comprehensive Learner Record Standard, and the Credential Engine Credential Transparency Description Language Schemas. Further, there are sustained efforts underway to further develop the public data infrastructure of the United States to better capture the outcomes experienced by those who participate in education and training programs, such as the CredLens initiative supported by the Strada Education Foundation. Expanded and linked education and employment data that encompass degree programs, non-degree credentials and workforce training, it is widely hoped, will provide a foundation for improved public spending, more robust and performance-based accountability, and underpin assessments of quality made by education and training providers, professional bodies, accreditors and learners themselves. And, at the same time, a third development is independently underway: non-degree quality guidance and practices based in higher education institutions and professional bodies are emerging, along with new data capabilities in the former meant to manage and monitor the quality of non-degree learning. These developments may enable new ratings of quality and the use of quality ratings in decisions about eligibility for funding, both at the student (e.g., Pell Grant eligibility) and institution level.

In this paper we examine, compare and assess existing credential quality frameworks, paying attention to both the criteria they propose, and to the guidance they offer with respect to the measurement of these criteria, noting in particular:

- Which criteria are most – and less – frequently proposed as dimensions of non-degree credential quality?
- Which criteria have been most often – and less often – subject to measurement?
- What has been the impact of quality frameworks on the non-degree quality practices of higher education institutions?
- What gaps exist between quality criteria and measurement found in quality frameworks, and how can one usefully characterize the possibility of closing these gaps?
- What might feasible "minimum data sets" look like based on data that are available today in the United States and based on what data might be possible to obtain and analyze in the near future?

We find that while there is substantial variation in frameworks used across the world, there is near-uniform agreement on some core attributes of quality. Quality non-degree credentials should lead to positive labor market outcomes for those who pursue them, though there is considerable variation in how those outcomes are defined – which depend in part on the labor market data available in different regional and national contexts. On the whole, we see only limited evidence that frameworks are shaping quality practices, though the majority of U.S. higher education institutions covered in our research have adopted guidelines for non-degree quality assurance. However, we see tremendous potential for the further development of existing data sources and the creation of new datasets to improve the measurement and evaluation of non-degree credentials.

International Experience with Non-degree Credential Quality

Concerns about absence of procedures for monitoring and assuring the quality of non-degree credentials extend far beyond the United States; they are shared by higher education systems across OECD member countries and jurisdictions. To take stock of – and learn from – developments outside the United States, we briefly examine how three Anglophone systems with important similarities to the United States – Ireland, Canada and Australia – have addressed these concerns. We also focus on the response of the European Association for Quality Assurance in Higher Education (ENQA), since it has an especially wide span of engagement with the quality of higher education provision, representing higher education quality assurance bodies in the 49 countries that comprise the European Higher Education Area (EHEA).

Every education and training system confronts tensions between allowing sufficient autonomy and scope for credential innovation, while balancing this against the need for a credential ecosystem that provides transparency and comparability for learners, and credentials that have recognized value for academic progression and labor market advancement. Viewed broadly, one can find four principal policy tools that are used to balance these competing priorities:

1. Standardizing and widely disseminating credential descriptors
2. Inclusion or alignment of non-degree credentials to national qualification frameworks
3. Incorporation of new credentials into existing or modified quality assurance standards and processes developed for degree programs
4. Enhancing and linking education and employment data systems to monitor learning and employment outcomes of credentialled learners.

There are important differences in how these systems and the United States have responded to new non-degree credentials. Outside of the United States, government ministries and quality assurance bodies have played a leading role in responding to credential innovation, while education-focused foundations and non-profit research and policy advocacy organizations that are central to policy development in the United States have played a negligible role in shaping debate and policy about credential innovation and quality.

As a consequence, emerging policy responses in those systems have centered on extending an existing educational policy infrastructure for quality to new types of credentials, such as incorporating non-degree credentials into national qualification frameworks and into the accreditation of higher education institutions and their study programs. This contrasts sharply with the United States, where initiatives with respect to credential quality have been initiated and led by non-governmental actors, who have created credential quality schema substantially separate from the accreditation-based quality infrastructure of higher education accreditation in the United States, and who have led parallel efforts to build a data infrastructure sufficient to develop outcome-based measures of credential quality.

Table 1. Approaches to Quality Assurance of Non-degree Credentials

	Standardize and disseminate descriptors	NQF alignment or inclusion	Incorporate NDC into modified QA	Linked data systems to monitor or regulate
United States	o	o	✓ (local, voluntary)	✓
Ontario (Canada)	o	o	x	o
Australia	✓ (if publicly subsidized)	o	o	o
Ireland	o	x	x	o

x: used o: not used ✓: partially/locally used, or under development

Note: NQF: National Quality Framework. NDC: Non-degree credentials QA: Quality assurance.

ENQA: A Pan-European Response to Non-Degree Credentials

ENQA seeks to contribute to the maintenance and enhancement of the quality of higher education within the European Higher Education Area (EHEA). To this end, it has promulgated principles meant to guide external and internal quality assurance in higher education, the *European Standards and Guidelines for Quality Assurance in the European Higher Education Area* (ESG). Higher education quality assurance (QA) bodies seeking to become ENQA members must demonstrate through periodic external review (coordinated by ENQA) that they are compliant with the ESG. The ESG outlines standards meant to guide agencies that conduct external reviews of quality, as well as standards for higher education institutions to guide their exercise of responsibility for internal quality assurance.

On balance, EHEA higher education institutions have been less active in developing non-degree credentials compared to higher education institutions in the United States. Those they have developed have been offered outside the framework of national quality assurance guidelines and the ESG. However, in recent years, the European Commission has strongly encouraged the diversification of credentials offered by European higher education systems, aiming in particular to support the adoption of "microcredentials" that can assist EU member countries in better promoting the upskilling and reskilling of their populations. As the offer of microcredentials has begun to take root in Europe, national quality assurance bodies and higher education institutions have become concerned that quality guidance, last revised in the 2015 ESG, is silent with respect to non-degree credentials.

In an effort to close this gap between quality guidance and newly emerging credentials, an ENQA Working Group, comprised of members from 13 countries, developed "expectations" for quality assurance agencies and higher education institutions to consider as they extend and adapt ESG principles to new non-degree offerings, contained in its cautiously named *Quality Assurance of Microcredentials: Expectations Within the Context of European Standards and Guidelines for Quality Assurance Within the European Higher Education*

Area report (ENQA 2023). The report examines the implications of applying the quality guidance initially developed for degree credentials to (non-degree) microcredentials, noting that, "The question of the applicability of the ESG to microcredentials is not so much 'if they apply,' but 'how they apply.' What additional elements need to be considered to give scope to the specificities of microcredentials and allow for them to serve the role they have crafted for themselves within the educational landscape?" (ENQA 2023:35).

Each of the ESG's ten guidance standards for higher education institutions are re-examined, with suggestions about their adaptation to microcredentials. For example, ESG Standard 1.7, Information Management, advises higher education institutions to ensure they "…collect, analyse, and use relevant information for the effective management of their programmes and other activities." The *Microcredential Report* suggests that:

> "*Information management for microcredentials should be integrated into the overall information management system, which feeds into the internal quality assurance system of the institution. This should guarantee that the quality of the collected data is sufficiently similar to that for other programmes. It is also important to integrate relevant data specific to microcredentials, or to adapt existing processes and procedures accordingly. … Additionally, other types of information, different from that collected for degree programmes, should also be considered for collection, for instance about stackability, professional upgrading, and the "shelf life" of the credential.*" (ENQA 2023:43).

The report likewise offers guidance to national quality assurance bodies, focusing on how the review of higher education institutional quality assurance measures, devised for degree programmes, needs to adapt to characteristics of microcredential learning. It advises that their review of microcredential learning will need to be less burdensome and more flexible than degree programs offered by higher education institutions, with an increased emphasis on labour market actors. Moreover, it acknowledges that microcredentials are often developed and offered in collaboration with "different types of education providers" (such as professional societies or industry partners), creating a need to "consider how such cooperation is quality assured and if accredited providers have the processes in place to safeguard the quality of provision offered in partnership with third party providers" (ENQA 2023:49).

In some respects, ENQA has chosen to focus on quality considerations that have shaped discussion and advocacy within the United States, albeit setting different priorities among them. It has emphasized that "transparency, recognition, stackability, and portability must be at the forefront of demonstrating the quality of microcredentials." These are criteria found in many U.S.-based quality frameworks, and understandable priorities for quality assurance bodies focused on the provision of degree-level education in higher education institutions. However, there are also important contrasts to discussions taking place in the United States. The *Microcredential Report* contains 20 pages of quality considerations for QA bodies and higher education institutions, but does not make a priority of wages or earnings when discussing quality, apart from its discussion on ESG Standard 1.8, "Public Information" in which it notes that "the provision of information about these microcredentials is consistent with the information provided about other programs delivered by the institution, but also addresses the specific nature of microcredentials and its diverse learner population. Special attention is paid to reaching out to non-traditional learners and offering information about graduate employment or academic progression" (ENQA 2023:44).

The ENQA *Microcredential Report* does not attempt to operationalize the quality criteria that it suggests should be priorities for education institutions and accreditors. Common measurement guidance is not feasible given the diversity of data systems among its 49 member countries. However, within the narrower scope of the European Union, with its 27 member states, the European Commission has recommended a set of common descriptors to be used when sharing information about microcredentials (European Commission 2021), and

it has incorporated microcredentials into the European Learning Model, the data model it has developed to capture and validate all learning-related data, whether on formal, non-formal or informal learning.

National Governments Respond to the Quality Challenge of Non-Degree Credentials

Within the European Higher Education Area – and beyond – responsibility for responding to non-degree credential innovation and quality concerns rests principally with government higher education ministries or departments, national quality assurance bodies, and higher education associations, most importantly the bodies representing the presidents or rectors of institutions. In the three systems we briefly examine – Australia, Canada (Ontario) and Ireland – a range of responses have been adopted. In the United States, by contrast, we see a wide range of state government and policy/research actors attempting to influence policy, but to date we have very limited evidence of impact on the practices of education and training providers.

Australia

Like their U.S. counterparts, Australian education and training providers have been innovators in organizing and credentialling learning, offering a variety of short and flexible learning opportunities outside of degree offerings. To further stimulate "upskilling and reskilling in short timeframes, to meet the needs of employers and industry", the Australian government has adopted a Microcredentials Pilot in Higher Education, through which it has invested in aiding higher education and training providers to design and deliver microcredentials, in partnership with industry, in fields of national priority.

Microcredentials in Australia are defined by government as "a certification of assessed learning or competency" based upon a volume of learning ranging from one hour and less than an Australian Qualification Framework (AQF) award qualification (a six-month undergraduate certificate) "that is additional, alternate, complementary to or a component part of an AQF award qualification" (Australian Government, Department of Education, Skills and Employment, 2021:9). They sit outside the AQF and are not reviewed by the Australian Tertiary Education Quality and Standards Agency (TEQSA). As the nation's peak body for universities, Universities Australia noted, "the lack of regulation provides space for providers to create innovative microcredential offerings that can quickly respond to the needs of learners, industry and others, but a lack of standardisation provides challenges for the recognition and portability of microcredentials for parties other than the issuing organisation" (Universities Australia 2021:4). To achieve a suitable balance between space for innovation and credentials that are recognised and portable, the Australian government has chosen a "soft" regulatory strategy, linking its public subsidies for microcredentials to the use of standardized information, widely disseminated.

The Australian Department of Education initiated a consultative process that issued a National Microcredentials Framework, the aim of which was to "provide greater clarity and understanding within the tertiary education sector and amongst learners as to the value and recognition of microcredentials," with sufficient flexibility to be used by industry, professional associations, higher education providers, and vocational providers (Australian Department of Education 2022). The framework set out a structure of common descriptors that providers of microcredentials were invited to adopt, among them 15 "critical information requirements" and 8 "recommended elements." The Framework provides a shared vocabulary for microcredentials that are hosted on the government's MicroCred Seeker, website, and use of the framework descriptors is compulsory for microcredentials funded by the Department of Education.

Figure 1. Critical Information Requirements

Element	Status	Description
Title	Required	The title of the microcredential, described in plain English.
Provider	Required	The institution delivering the microcredential, and, if relevant, the company that developed the microcredential, i.e. XYZ Vendor microcredential being delivered by ABC University. A provider will also include partner providers, co-branding partnerships and industry endorsers. A provider is any company or institution that provides a microcredential.
Content/ Description	Required	A description of the structure of the microcredential and a summary of the content that will be taught, i.e. key topics.
Learning Outcomes	Required	The knowledge, skills or competencies a student will acquire upon completing a microcredential. Guidance on these learning outcomes is outlined in **Section 5.1**.
Language	Required	The language/s of instruction in which a microcredential will be taught in/ assessed. In an attempt to recognise interoperability and global citizenship, microcredentials may be offered in multiple languages.
Delivery Mode	Required	The method of delivery of a microcredential, e.g. onsite, online or a combination of both, and whether the microcredential requires synchronous engagement or is asynchronous. Where delivery is onsite, the location(s) will be stated.
Date of Delivery	Required	The set relevant delivery dates (start/ end) and an outline of the schedule within these dates, or whether a microcredential can be completed at a learner's own pace and commenced on any given date.
Learner Effort	Required	The commitment/ effort (volume of learning) required of learners. This estimate of hours should include: i. Number of hours of in-person face-to-face contact with teaching staff. ii. Number of hours of synchronous online contact with teaching staff. iii. Number of hours of peer-to-peer engagement and its mode. iv. Estimated number of hours of asynchronous online content and reading/ viewing of audiovisual material, etc. v. Estimated number of hours spent on assessment.
Inherent Requirements	Required	The resource/s (if any) needed to undertake a specific microcredential, i.e. a laptop, specific software, textbooks, etc.
Price and Financial Assistance	Required	The cost of a microcredential to learners, including any GST, discounts stipulated by providers, government funding and accepted payment mechanisms i.e. AfterPay, PayPal, and scholarships. The financial assistance for which a microcredential may quality for.
Assessment	Required	The assessment element: the method and type of assessment (competency vs proficiency). Where assessment is onsite, the location/s will be stated.
Certification	Required	The proof of learning outcomes being met, i.e. certificate of completion. This proof of learning is issued upon completion of the microcredential.
Credit/ Other Recognition	Required	The type of recognition (credit towards award courses, credit towards vendor/industry certifications, pathways or other recognition) that can be given upon completion of a microcredential.
Quality Assurance	Required	The assurance that microcredentials are developed and delivered in an educationally sound manner for learners. This may be a statement of quality assurance processes applied to the microcredential such as provider or CRICOS codes, relevant regulator, and approach to academic integrity and assessment.
Prerequisite/s	Required	The microcredential or level of experience that must be successfully completed prior to attempting to earn or complete the referenced microcredential.

Figure 2. Recommended Elements

Element	Status	Description
Expiration of the Microcredential	Recommended	The date when a microcredential is due for review and resubmission. Microcredentials should be reviewed as required and appropriate, depending on the nature of content and learning outcomes.
Depth of Learning	Recommended	The mastery level of a learner upon achievement of learning outcomes and completion of a microcredential, i.e. a learner has completed X microcredential which sits at novice level.
Jurisdiction	Recommended	The institutions or jurisdictions where the microcredential is applicable or recognised.
Industry Support	Recommended	The assurance that microcredentials meet an industry need and reflect skills sought by employers. For example, a statement of support from industry.
Recommended Prior	Recommended	The microcredential/ course/ professional experience a learner is recommended to complete before attempting to undertake the referenced microcredential.

Stackability	Recommended	Any other microcredentials that a microcredential combines with (stacking) that lead to an overall certification being awarded upon completion, or entry into a further course.
Industry/ Occupation	Recommended	The industry/s that a microcredential sits within, and the occupations/ career pathways a microcredential may lead to.
Industry Alignment	Recommended	Industry competency framework/s that a microcredential may be aligned to, i.e. Skills Framework for the Information Age (SFIA), CPA.

Source: Australian Government, Department of Education, Skills and Employment. 2021. *National Microcredentials Framework* (https://www.education.gov.au/download/13591/national-microcredentials-framework/26500/document/pdf).

The Australian approach to quality – focused on supporting consumer choice among transparent and common descriptions of credentialled learning – can be compared to that of the United States, in which the Higher Education Act (HEA) specifies that standardized information must be reported by education providers to the federal government, or disclosed by higher education institutions to the public, and in the former case, the information is subsequently disseminated by the U.S. Department of Education through College Navigator and College Scorecard. However, U.S. reporting and disclosure extend only to the higher education institutions participating in HEA Title IV programs, and programs that lead to the award of a "recognized degree" and not non-degree credentials. Credential Engine's Credential Finder can likewise be viewed in comparison to MicroCred Seeker, though Credential Finder contains a wider scope of credentials than MicroCred Seeker, a rate of coverage that may be less complete, and interface that attempts to simultaneously meet the needs of "individual learners, credential providers, government agencies, application developers, skill and competency creators, employers and quality assurance organizations" (Credential Engine 2024).

Ontario

In Canada, responsibility for nearly all aspects of higher education policy, apart from research funding and student financial assistance, rests with Canada's provincial governments. Canada's most populous province, Ontario, has initiated financial support for providers of microcredentials, defined as short-term non-degree credentials, and support for learners enrolled in programs of less than 12 weeks (Government of Ontario n.d.). And it has, like Australia, adopted a framework that aims to "support student employment and educational goals by providing [non-degree] programming that is recognised, portable, and has stacking potential, all while allowing for provider autonomy" (Postsecondary Education Quality Assessment Board n.d.).

Within Ontario's government, responsibility for establishing "criteria and procedures to determine the quality of postsecondary programs" and undertaking "reviews of program quality and organizational capacity" rests with the Postsecondary Education Quality Assessment Board (PEQAB), as well as three other quality bodies with specialized remits. In 2023, the PEQAB produced *Ontario Microcredentials: Harnessing the Potential*. The quality framework it proposed, and which it has subsequently adopted, contained three components: (a) a qualifications framework; (b) quality assurance processes; and (c) a process of recognition through the award of an official trademark of quality and reliability, the Ontario Microcredential (OMC) designation.

While the Quality Assessment Board noted that the Ontario Microcredential Qualifications Framework (OMCQF) *can* align with, or be embedded into, the existing Ontario Qualifications Framework, the OMCQF remains outside the province's Qualifications Framework, setting out guidance to providers about describing credentials by academic level (relative to established qualification levels in the OQF), duration, and eligible providers – without, however, mapping out an inventory of descriptors that would be obligatory for providers to adopt. Quality assurance of microcredential learning results from a review and approval of the provider's Institutional Quality Assurance Process (IQAP) by one of Ontario's external quality assurance

agencies. The PEQAB's *Harnessing the Potential* Report advises that institutions provide evidence of the following to external quality assurance bodies:

a. *how the quality of micro-credentials is appropriately assured within its IQAP processes*
b. *how the curriculum and learning outcomes for micro-credentials are appropriately developed*
c. *how the learning outcomes for micro-credentials are appropriately assessed*
d. *how micro-credentials are linked to the appropriate level (column) for learning outcomes (competencies) on the Ontario Qualifications Framework (OQF)*
e. *how employer/labour market needs are assessed and incorporated*
f. *how duration is appropriately assigned*
g. ***how partnerships with employers, industry and professional associations – if any – ensure quality provision***.

Source: Postsecondary Education Quality Assessment Board (PEQAB). 2023. Ontario Micro-Credentials: Harnessing the Potential. A draft proposal for an Ontario Micro-Credential Quality Assurance Framework. pp. 64, Appendix 5. (https://www.peqab.ca/OMCReport.html).

Having met this requirement, providers of microcredentials were to have obtained a trademarked OMC designation for their credential. To support learner choice, Ontario invested in the development of a portal, the aptly named Microcredentials Portal, in which credential-seekers may search among roughly 2,500 offers, filtering by a range of attributes, including prerequisites to and pathways from the credential, instructional hours and delivery mode.

A 2024 review of microcredential quality guidance in Ontario, *Postsecondary-offered Microcredentials in Ontario: What Does the Evidence Tell Us?* points to a number of deficiencies in Ontario's quality provisions with respect to the supply among providers, demand among learners, and outcomes. Unlike Australia, Ontario did not mandate a set of common credential descriptors that institutions were to use when listing their offerings on their Microcredentials Portal, hampering the development of "transparent, consistent information about Ontario microcredentials" and the development of "trust among learners and employers". Ontario has likewise chosen to not collect data from postsecondary institutions about microcredential enrolments and learner characteristics, nor has it sought to have institutions link data about completion to post-learning outcomes, whether in the labor market or in further learning (i.e., credential stacking) (Pichette and Courts, 2024).

IRELAND

Responsibility for the quality of education and training in Irish higher education rests principally with universities themselves, which operate within a framework of guidance set out by Quality and Qualifications Ireland (QQI), the nation's quality assurance body. The Universities Act and QQI guidelines obligate universities to establish and implement quality assurance procedures, to carry out internal monitoring and review of quality, to undertake annual quality reporting, and to participate in periodic external reviews by QQI. Additionally, QQI is responsible for the maintenance and updating of the nation's National Framework of Qualifications (NFQ). Working together, Ireland's QQI and its universities have established what is regarded as one of world's most robust and mature arrangements to assure the quality of microcredential provision, and as of late 2023, the Irish Register of Qualifications contained more than 1,500 microcredential qualifications awarded at the higher education level. With a mature system of higher education credentialling in place, the QQI has begun consideration of how non-degree credentials awarded by professional associations and industry-based training and credentialing providers might be incorporated into the nation's structure of qualifications and quality assurance.

The transparency and comparability of microcredentials in Ireland is grounded, in important part, in policies for credit accumulation and the nation's qualifications framework. Microcredentials are defined to range between 1 to 30 credits in the European Credit Transfer and Accumulation System (ECTS), with each credit to be comprised of 25 learning hours. The credentials are incorporated into the Irish National Framework of Qualifications, which recognizes ten levels of learning achievement, five of which, Levels 6 to 10, are at the higher education level. At Levels 6-10, the NQF contains categories encompassing both major awards (degrees) and "non-major" awards, which may be a "minor award" (partial completion of the outcomes for a degree); a "supplemental award" (learning that is additional to a degree award) or a "special purpose award" (for "relatively narrow or purpose-defined achievements"), through which microcredentials have been incorporated (University College Cork Presentation n.d.). ECTS credits and NQF levels provide a foundation of agreed and common descriptors employed nationally, with further information about delivery mode, entry requirements, assessment practices, industry collaboration, and other credential descriptors provided by universities according to institutional rather than national guidelines.

Responsibility for the quality of microcredential offerings rests principally with universities themselves, which have opted to employ criteria and procedures developed for the review and approval of degree programs, with review of proposed credentials taking place at the department, college and university level.

> *All microcredentials also follow our assessment standards including review by an external examiner with specialist knowledge in that field. In addition to these academic standards, both the student and employer voice are considered to ensure an outstanding student experience and work-ready skills and knowledge. To further ensure quality standards, student feedback is sought and responded to within a pre-determined cycle.*

Because microcredentials are meant to respond to regional and employer needs, while following standards shared with degree programs, universities have adopted "bespoke and responsive approval processes" that provide a three-month turnaround, as opposed to 18 months typical of degree program approval (University College Cork Interview 2024).

Ireland's universities have begun to integrate microcredentials into their core business operations, and even into university-wide information systems, such as curriculum information management systems. However, Ireland's public authorities have not made a priority of building a national data infrastructure that would permit credentialling bodies to systematically monitor learner outcomes, particularly the stacking of short-term credentials and their labor market outcomes, nor have public authorities proposed to make labor market outcomes a compulsory feature of public funding.

The United States: Quality Frameworks for Non-Degree Learning

A Proliferation of Initiatives

Non-degree credentials delivered by U.S. higher education institutions lie outside the scope of the federal Higher Education Act and its regulatory requirements contained in Title IV student aid eligibility rules (and their associated accreditation requirements), or mandatory reporting requirements for Title IV institutions that are implemented through the Integrated Postsecondary Education Data System (IPEDS).

IPEDS is a program of the U.S. Department of Education; however, they are not the only federal agency with an interest in monitoring the universe of training and credential programs in the United States. The Employment and Training Administration of the Department of Labor (DOL) mandates reporting on credential program characteristics and outcomes through Form ETA-9171, which forms the basis of outcomes data

(enriched with unemployment insurance earnings data). To be subject to reporting requirements, a credential issuer must be approved by at least one state as an Eligible Training Provider at which individuals can spend funds provided through Individual Training Accounts approved by a local workforce board. While there is some overlap between the programs that report data to IPEDS and those that appear in the TrainingProviderResults.gov dataset, in general, IPEDS leans much more heavily towards traditional higher education institutions and TrainingProviderResults.gov tends to cover non-credit programs.

In the absence of a coordinated approach by the federal government of the United States, a wide range of private initiatives have emerged that aim to enhance the portability, transparency and quality of non-degree credentials. These initiatives include voluntary open-source interoperability standards for credentialled learning promoted by consortia within the educational technology industry, nascent efforts to develop a voluntary national qualification framework in which non-degree credentials are included (the United States Qualification Framework), and initiatives by higher education sectoral organizations to create and disseminate guidelines of good practice for educational institutions that seek to develop non-degree credentials, including the American Council on Education (ACE), UPCEA, and the American Association of Collegiate Registrars and Admissions Officers (AACRAO). These efforts are complemented by non-degree quality frameworks, which aim specifically to create criteria and processes that education and training providers can adopt, which we examine below.

Comparing Quality Frameworks

Efforts to develop a framework for understanding non-degree credential quality at the national level have been led by membership and academic research organizations with support from philanthropic organizations. The two most prominent quality frameworks for non-degree credentials in the United States are the Rutgers Education and Employment Research Center's Non-degree Credential Quality (NDCQ) Framework and the Educational Quality Outcomes Standards (EQOS) project, which was once a standalone organization but is now jointly managed by Jobs for the Future (JFF) and Burning Glass Institute (BGI).

The Rutgers and EQOS frameworks have much in common in the elements of quality emphasized in their public documentation; however, EQOS is unique as far as there are active efforts underway on the part of Burning Glass Institute to develop and eventually publish credential quality assessments. While some aspects of the EQOS framework have not been formally updated in publicly distributed documentation since 2018, it is widely understood from presentations at conferences and other outreach efforts that BGI intends to leverage a vast dataset of individual career trajectories, accumulated primarily through LinkedIn profile scraping. From these profiles, BGI can use imputed salary data to relate earnings to individual non-degree credentials; these earnings are understood to be a primary indicator of quality in the ratings that EQOS eventually aspires to publish.

The Rutgers NDCQ Framework, on the other hand, is conceptual in nature and not associated with a specific data analysis initiative. Rather, Rutgers aimed to provide a resource that institutions themselves, among other stakeholders, can implement in their own analyses. The intended uses of other framework documents can be somewhat ambiguous; New America and the American Council on Education seem to be speaking directly to credential issuers, while the National Skills Coalition seems to be aiming to influence the development of frameworks by individual states and the National Accreditation Commission is developing a framework that it intends to implement as a means of awarding accreditation to programs that meet quality standards.

It is important to note that no non-degree credential quality framework publisher is currently publishing ratings of individual credentials based on their frameworks, neither in the United States nor in any other country in which we were able to identify a complete framework. However, some state governments are

developing frameworks that guide the placement of non-degree credentials on lists on the basis of judgments of quality. State credential of value frameworks (CoVFs) are designed to help state governments determine which credentials to steer job-seekers spending public funds towards to ensure a return on investment. They tend to focus on non-degree credentials, though associate and baccalaureate degrees are covered by frameworks in some circumstances. Quality credentials tend to be defined by CoVFs as those credentials that exceed minimum standards for eligibility for WIOA funding. Perhaps in recognition of the current limitations of statewide longitudinal data systems (discussed further below), CoVFs generally have not evaluated the labor market outcomes of an individual credential – rather, they look at labor market information (e.g., job opening) for the entire occupation – for example, a cybersecurity non-credit certificate may be placed on a list on the basis of the strength of the job market in cybersecurity in a given state. It is important to recognize that state CoVFs are often limited by the availability and quality of data on credential attainment and outcomes, which we will describe in detail in the next section of this report.

Summary of U.S. Frameworks

National-Level

- **Educational Quality Outcomes Standards (EQOS)** published a detailed set of metrics for assessing the quality of non-degree credentials in 2018 and has been operationalizing those metrics under its new management as a joint venture of Jobs for the Future and Burning Glass Institute. Key principles of the EQOS framework include the measurement of learning, completion rates, placement rates, earnings, and stakeholder satisfaction and confirmation of purpose. The measurement of learning and completion rate is to be determined by information provided by a credential issuer, while placement rate and earnings data can come from administrative data and stakeholder satisfaction could be determined in part by alumni surveys. EQOS is notable for the specificity of the metrics it suggests for measuring learning and labor market outcomes.
- **Rutgers University's Education and Employment Research Center** published a framework in 2019 that is built on four major principles: credential design, competencies, market processes, and outcomes. While labor market outcomes measured via administrative or survey data could certainly be used to gauge the quality of a credential, the Rutgers framework also focuses on other sources of legitimacy such as a credential's accreditation and recognition by trade and industry associations. Rutgers also emphasizes the alignment of competencies recognized by a credential and labor market outcomes. Specification of metrics for each credential quality criterion in the Rutgers framework is limited.
- **The National Skills Coalition** published a document, *The Non-degree Credential Quality Imperative*, focusing on how state governments can evaluate the quality of non-degree credentials. Focusing on WIOA eligible training providers as credentials of interest, the document identified the availability of jobs for completers, the competencies represented by the credential, employment and earnings outcomes, and the stackability and portability of a credential as key elements of quality (National Skills Coalition 2023).
- **The National Accreditation Commission (NAC)** is a new organization seeking to develop and implement a model of postsecondary accreditation that meets the needs of workforce-oriented credentials. NAC proposes to evaluate quality through an assessment of several dimensions of a program's operations and outcomes, including mission, leadership and planning; program design and delivery; recruiting, admissions and enrollment; faculty, instructors and staff; learning recognition and student services; administrative and fiscal capability; and student achievement. NAC accreditation is intended to be a tool by which qualifying programs can enable their students to become eligible for Pell Grants if and when Pell Grants become available for students enrolling in short-term credentials.

- **The American Council on Education (ACE)** proposed six dimensions of quality for "connected credentials" in a 2016 report, *Quality Dimensions for Connected Credentials*. Those six dimensions are transparency, modularity, portability, relevance, validity and equity. ACE's focus on equity in who attains and benefits from non-degree credentials stands out from other taxonomies. That said, the proposed measures for portability and relevance have much in common with the labor market outcomes defined in other frameworks (American Council on Education 2016).
- **New America** published a series of papers as part of its New Models for Career Preparation project in 2022 and 2023 focusing specifically on credential quality in the context of community colleges. Dimensions of quality included the extent to which a credential prepares one to attain further advanced credentials, the extent to which a credential aligns with in-demand, high-quality jobs, and the advancement of equity in occupationally segregated jobs. New America acknowledged that additional data needs to be collected by various stakeholders, including community colleges themselves, to effectively implement proposed measures of quality.

STATE-LEVEL

Multiple states have launched their own CoVFs for identifying high-quality credentials. While states are influenced by the efforts of national policy organizations such as the National Council of State Legislatures and the National Skills Coalition, they vary in the extent to which they emphasize concepts other than labor market value – which tends to be defined on the basis of the characteristics of occupations that individuals train to enter, rather than the analysis of data that can be used to evaluate outcomes of individual credentials. The three states described below are representative of more advanced efforts to develop frameworks; other states, such as Florida and Hawaii, have published documents describing efforts to determine the value of credentials but have not settled on a single framework.

- **Louisiana** relies on three key indicators of value: competencies, labor market alignment and wages. Competencies are assessed based on the state's qualitative assessment of whether a credential is recognized by industry. Labor market alignment is determined by whether the occupation associated with a credential is rated as three stars or above (on a scale of 1-5 stars) in a rating of short- and long-term labor market demand defined by the Louisiana Workforce Commission. Wage outcomes are based on the occupation associated with a credential, not an analysis of earnings of individuals who complete a given credential.
- **Minnesota** developed a credential of value framework that includes commonly-cited dimensions of value such as labor market demand and wages in occupations associated with the credential, while also adding an emphasis of a the stackability of a credential – that is, the extent to which a credential prepares one to obtain higher-level qualifications or provides credit that transfers into other credentials. It also emphasizes accessibility to diverse learner populations, and, uniquely, it judges credentials on the basis of whether they have a "statement of intention" regarding diversity, equity and inclusion.
- **Colorado** published a credential of value framework that treads familiar ground by emphasizing labor market alignment, employer recognition and employment outcomes – focusing on occupation-level data in lieu of data on the experiences of individuals who complete a credential. Colorado also notes stackability and evidence of skill attainment in its framework, without providing guidance on how skill attainment can be measured.

The Impact of Voluntary Quality Initiatives and Frameworks

To learn what higher education institutions are doing to assure the quality of non-degree learning, and to inquire how voluntary quality frameworks have shaped their practices, the GWU Program on Skills, Credentials and Workforce Policy joined with UPCEA to deliver a simple web-based, fixed-response survey in August 2024. The survey was sent to members of their Council for Credential Innovation, and inquired about quality policies and practices in their institution, and about the integration of campus data systems with respect to degree and non-degree learning, to describe the learner experience, and the capacity of data systems to link to external information resources that generate evidence of learner outcomes (see Appendix A.) We recognize that institutions understandably develop different policies and practices with respect to credit-bearing non-degree credentials and those that are awarded academic credit, and therefore ask separately about polices for credit-bearing and non-credit programs. We describe our results for credit-based and non-credit programs respectively in the sections that follow.

Quality Criteria and Processes for Credit-Based Non-Degree Credentials

The GWU/UPCEA survey reveals that quality standards and procedures for credit-bearing non-degree credentials are widely established, typically at the institutional level, and devised based upon modified procedures used for the accreditation of degree-based programs.

Broadly speaking, respondents told us that standards and procedures to assure the quality of credit-based credentials were either in place or under development, with only three respondents indicating they were unsure or that no procedures were in place on their campus. Moreover, standards and procedures for assuring the quality of non-degree credentials tended to be viewed as an institutional responsibility more often than not, with faculty or schools and departments and individual instructors infrequently assuming responsibility for the development of standards and procedures. Moreover, in most cases, standards and procedures are based upon those used for the accreditation of degree-awarding programs, rather than separate and distinct processes that are purpose-built for non-degree learning.

Institutional data systems have a limited capacity to monitor the learning experience of those in credit-based non-degree programs. Entering learners and completers are often captured in institutional data systems (in 16 and 18 out of 32 responses, respectively), but credential stacking is only measured by 7 institutions that responded to our survey.

We also inquired about linkages or plans to link with external data systems that could enable institutions to follow the long-term labor market outcomes of non-degree learners. Eight institutions indicated that they have linked or plan to link data; specific plans include linking to public unemployment insurance data (N=1) and proprietary data (N=4) such as from LinkedIn or National Student Clearinghouse; however, “no plans to link” was the most common response.

Quality Assurance of Non-Credit, Non-Degree Learning

We can contrast our responses regarding quality assurance and data collection for degree-based learning to non-degree learning. Although there are criteria and procedures that institutions have devised to assure the quality of non-degree, non-credit learning; we see great diversity in institutional approaches to quality assurance and data collection with far greater decentralization of responsibility, and often only a limited connection to the processes used for degree programs.

First, some good news for advocates for credential quality: nearly all respondents indicate that their institution either has standards and procedures to assure the quality of non-credit, non-degree learning, or

that standards and procedures are under development (Figure 3). Only three respondents indicated that no quality criteria and processes were in place, and one was uncertain.

Figure 3. Existence of Quality Standards for For-credit and Non-credit Learning

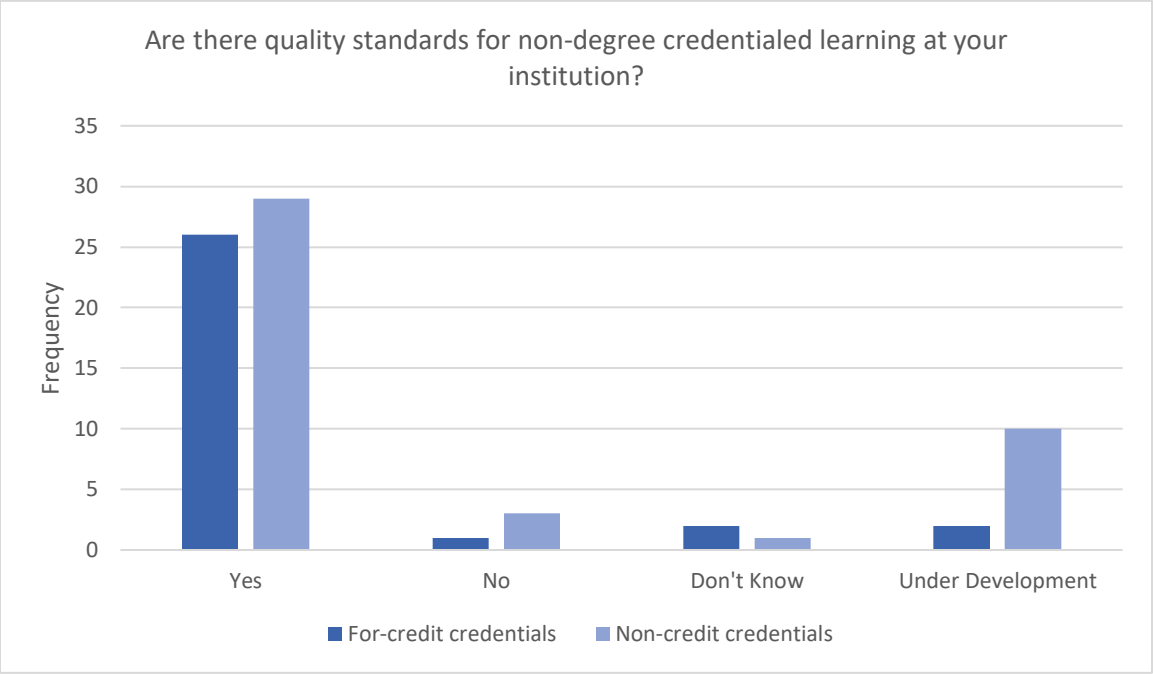
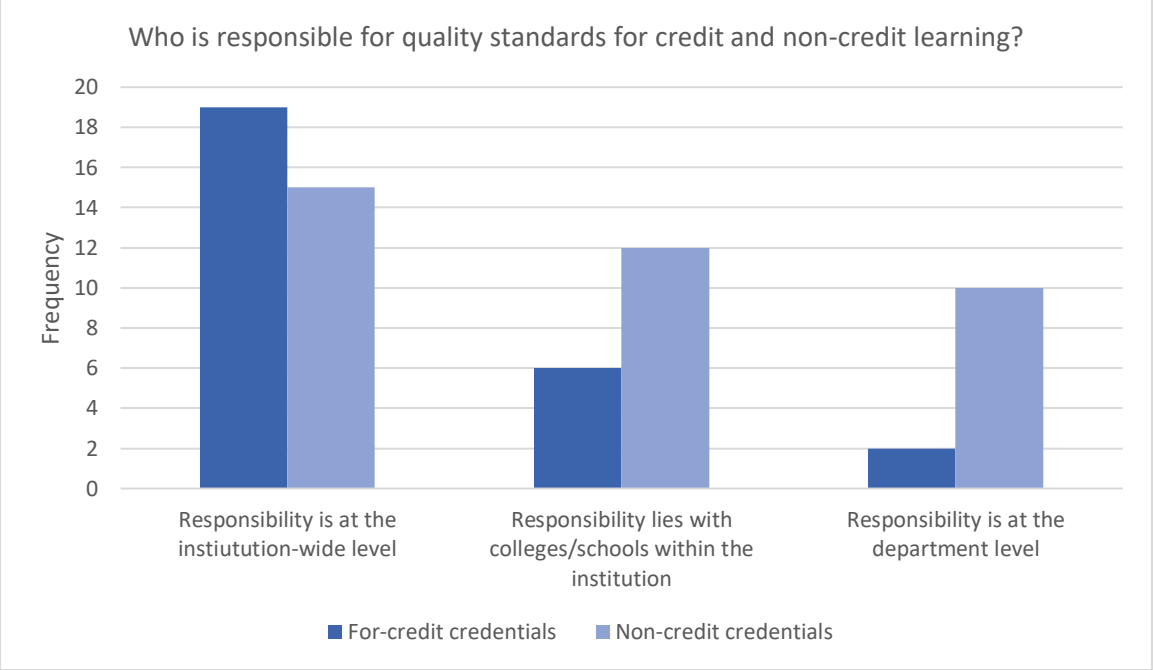


Figure 4. Level of Approval for For-credit and Non-credit Learning



However, similarities to quality assurance practices for for-credit learning end there. Most respondents indicated that QA of non-credit, non-degree credentialling takes place below the institutional level, either at the faculty or departmental level (Figure 4). About two-thirds of respondents indicated that separate, tailor-built procedures and criteria are used to assure the quality of learning and credentialling, while only half of respondents reported the use of procedures and criteria adapted from the accreditation of degree-based learning.

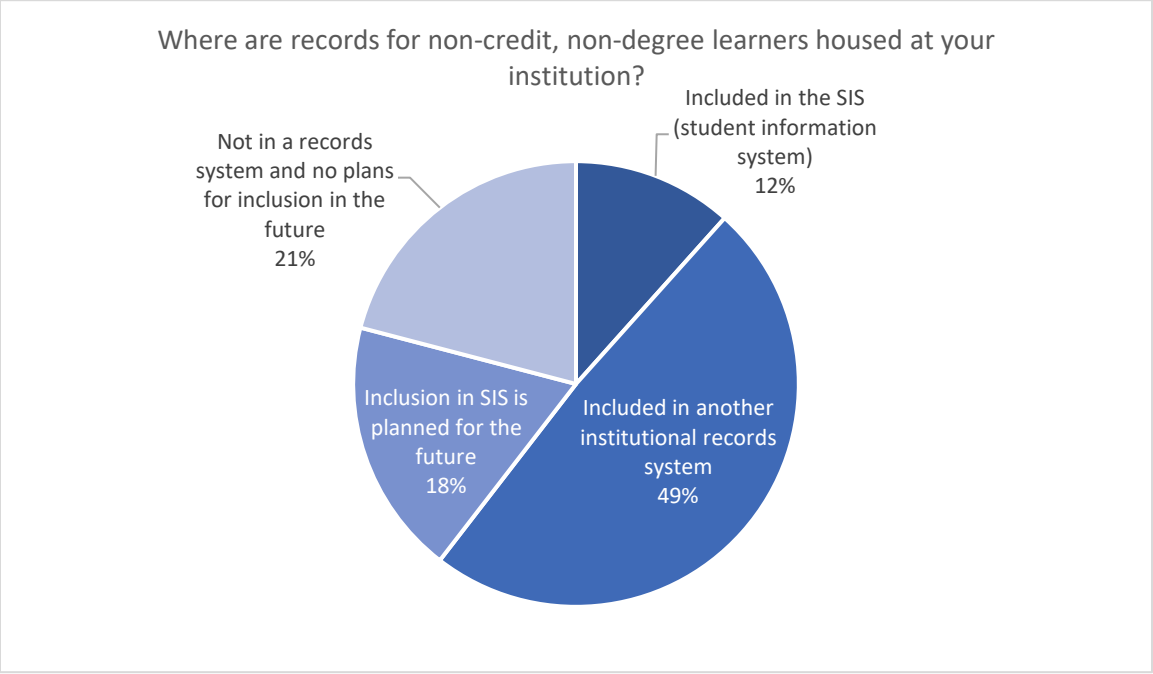
When institutions devise their own tailor-built quality processes for non-credit, non-degree learning, they draw upon a wide range of guidelines of good practice developed by professional associations, advocacy organizations and foundations. Members of the UPCEA Council for Credential Innovation most often pointed to UPCEA's Hallmarks of Excellence as a resource in the development of quality processes (N=10), as well as AACRAO's "Alternative Credentials: Considerations, Guidance, and Best Practices" (N=6). Credential quality frameworks published by National Skills Coalition ("Non-Degree Credential Quality Imperative"), Rutgers University, and JFF/Burning Glass Institute were less frequently mentioned as an important input to institutional quality criteria and processes (each receiving three or fewer mentions).

Low levels of data integration within institutions and external linkage for non-credit, non-degree credentialing

While some respondents indicated that non-credit, non-degree learning is integrated into their campus student information system (SIS) or will be in future, more often there are no plans for SIS inclusion or non-credit learning is contained in separate institutional record systems.

Only 4 out of 37 respondents to our questions about non-credit records indicated that their institution could link learner non-credit, non-degree credential data to external data resources and only one-third of respondents plan to develop this capacity in the future.

Figure 5. Records Housing for Non-credit, Non-degree Learning



Note: Institutions could select multiple responses.

The GWU/UPCEA survey did not capture credentialled learning outside of higher education institutions, or a representative sample of higher education institutions offering non-degree credentials. Nonetheless, among respondents to the survey one can see a clear pattern: emergent quality practices for credit-based non-degree credentialling have been shaped foremost by the criteria and procedures that have been formed through the accreditation of degree programs, rather than quality framework initiatives, the influence of which has been modest. The data infrastructure that underpins non-degree learning is modestly developed, with limited integration to central student information systems, and a limited capacity – and plans – to join up with external data systems that build an account of learner outcomes.

Building on Institutional Data: The Need to Link to a Broader Data Ecosystem

While we learned from our survey with UPCEA that institutions vary in their own ability to collect data on non-degree credential quality and their own metrics for using that data, we see that some aspects of quality will need to be measured with the assistance of external data sources. Ultimately, institutional data will be most useful when it can be linked with data that may be held in various external systems. And, conversely, the further development of institutional data systems will be critical to permit public data systems to link up to non-degree learners and build evidence of their outcomes. Improvements to institutional data systems could also reduce the administrative burden that was cited by higher education institutions that objected to the expansion of IPEDS to cover non-credit programs of study, potentially paving the way for more expansive public data collections in the future.

Governments and other organizations implementing non-degree quality frameworks have a variety of different sources of data to choose from, each with pros and cons regarding data availability, data quality (including accuracy and integrity), and different cost structures and access requirements. In the following paragraphs, we discuss the major sources of data that currently exist, and also describe data that may not currently exist but could be created with the cooperation of relevant parties. We see potential data sources fitting into a quadrant, with four corners representing whether data exists and whether it is attainable.

Figure 6. A Spectrum of Data Existence and Availability

Few datasets fit perfectly into one of these quadrants. For example, data contained in statewide longitudinal data systems may be accessible to researchers and researchers may be able to publish results of their analyses, but the process of accessing data held in a state longitudinal education data system (SLDS) can burden researchers with significant transaction costs – and those costs likely vary significantly across states. Similarly, credential issuers vary in their willingness to share data generated by their internal records systems, with data sharing hesitancy likely stemming from concern that they may reveal themselves to be of lower quality than what is perceived by students or the public.

Commonly Referenced Datasets for Assessing Quality

Data Exist with Costs: State Longitudinal Data Systems

State Longitudinal Data Systems (SLDSs, sometimes referred to as SLEDs) are administrative datasets maintained by state governments (often, but not always, by state education agencies) that involve some level of longitudinal data linkage between administrative records on educational attainment and labor market outcomes (most often through unemployment insurance wage reporting). Some SLDSs include a rich array of control variables reflecting different aspects of a government's interactions with its citizens, including motor vehicle licensing (allowing for control variables to be added to an analysis related to one's place of residence), criminal justice involvement, occupational licensure, and receipt of social benefits. SLDSs offer many advantages from a data quality perspective, including:

- Administrative data: data on earnings are collected directly from unemployment insurance wage records. The accuracy of these records is likely high, since it comes directly from employers – there is no need to worry about biases that may result from individuals self-reporting their data.
- Longitudinal perspectives: it is possible to chart the long-term outcomes associated with individual credentials via a SLDS. Theoretically, one can measure earnings gains throughout the life-course.
- Some, but not all, SLDSs include granular data on job titles and industries in which individuals are employed.

However, like any data system, reliance on SLDSs could pose some drawbacks to researchers. Such disadvantages include:

- Limited inter-state data coverage: despite efforts of the Coleridge Initiative and other inter-state data sharing efforts, individuals who move between states or who live and work in different states may not be covered by SLDSs.
- Legal limitations on access: state agencies are cautious about granting data access to third parties, and in some cases may be completely unwilling to issue data use agreements to certain types of entities or purposes.

Data Exist and are Widely Accessible: WIOA PIRL and TPR/ETPPR

Public data on earnings up to four quarters after credential completion is available for a subset of training providers who appear in the WIOA Participant Individual Record Layout (PIRL), a large, anonymized dataset of individuals who receive support through WIOA through an individual training account (ITA), which covers tuition and other costs associated with certain types of workforce training. Not all credentials will appear in WIOA data, and for those who do, any wage outcomes will only apply to individuals who received an ITA associated with their attendance – not the entire population of students enrolled.

TrainingProivderResults.gov (TPR, also sometimes referred to as Eligible Training Provider Performance Results or ETPPR) aggregates some of the underlying information in the WIOA PRIL at the program level and complements it with some additional program-level information related to, for example, the cost of attendance.

Data Exist with Costs: LinkedIn

LinkedIn has far better coverage than any other web-based platform where individuals can voluntarily self-report information about credential attainment and career trajectories post-completion, with all of the

disadvantages that come along with self-reported data. While LinkedIn itself is somewhat protective of its data and limits access to researchers, some organizations such as Burning Glass Institute and Lightcast use data "scraped" from LinkedIn to understand the career trajectories of individuals. LinkedIn is particularly notable for the role of its data in powering the American Opportunity Index, a large dataset containing approximately 20 million career histories with estimated/imputed salary data, which is being used in some early implementations of the EQOS non-degree quality framework.

Data Exist: Accreditation Rosters

There are 24 organizations established for the accreditation of higher education institutions recognized by the United States Secretary of Education. Accreditors are responsible for setting out quality criteria and collecting evidence sufficient to assure that the education provided by colleges and universities meets acceptable levels of quality. Institutional accreditation is based upon data provided by institutions with respect to their policies, practices and performance, and information gleaned from site visits conducted by peer reviews, and include interviews with students, faculty and administrators. Programmatic accrediting organizations play a complementary role to institutional accreditors, accrediting the quality of programs and validity of degrees awarded in specific fields of study, often for regulated or licensed professions. Rosters of accredited institutions and programs are maintained by accrediting organizations and the U.S. Department of Education Database of Accredited Institutions and Programs, and institutional – and especially programmatic – accreditation (or its absence) can be viewed as a data point signaling quality, albeit as a signal of minimum quality, with what critics point out to be a large measure of noise (Flores, 2019).

Data Exist: Job postings

In theory, job postings are an ideal source of information about whether a degree, certification or other credential is demanded in the labor market. While data contained in job postings tend to be unstructured, recent advances in AI large language models offer a reasonable degree of accuracy in the extraction of qualification requirements from job postings analyzed in bulk. Job postings are aggregated by private firms such as Lightcast and through the National Labor Exchange Research Hub, which is accessible to researchers without charge.

It is important to acknowledge research noting significant variation in the quality of job postings as data sources. Job postings only capture the section of the labor market that is visible "on the surface" – not the "hidden" job market that is never advertised to the public and largely depends on referrals and networking rather than application through formal channels. Moreover, job postings are sometimes written according to formulaic requirements that vary from firm to firm and may not convey important information, sometimes because a firm may be attempting to maximize or limit the number of applications received. Nonetheless, job postings do give a general idea of the contours of labor market demand when analyzed in the aggregate, and it is certainly possible to use the indications of demand generated through job postings to assess alignment between credentials and labor market demand.

Data Exist: Consumer reviews

Consumer reviews of training providers and the credentials they offer can be found at various websites. Large consumer review websites commonly associated with reviews of restaurants and service businesses, such as Google Maps and Yelp, also offer learners the opportunity to leave unstructured reviews of their experiences with educational institutions. While these reviews are inherently subjective, they are a readily accessible source of information volunteered by individuals who claim to have first-hand knowledge of instruction – even if individuals are on the "honor system" in terms of having a genuine connection to the

program/service provider they are reviewing and there are known cases of competitors manipulating one others' review. Peer and user reviews of credentials also exist on forums such as Reddit and other social media sites.

A somewhat more structured dataset existed in the form of the "certifications" section on Indeed.com, a large aggregator of job postings. Indeed's certification review section is not limited to true industry or professional certifications; nearly any U.S.-based or U.S.-serving issuer of credentials seems to be eligible, and the dataset contains duplicative entries for individual credentials and "parent" credential issuers (e.g., reviews of individual university programs, university departments and schools/colleges co-existed simultaneously). While Indeed's certifications section was removed from public view on its website in November 2023, the underlying data – if made available to researchers or scraped from a source such as the Internet Archive Wayback Machine – could provide "proof of concept" for the analysis of textual reviews of credentials.

It is also notable that the U.S. Department of Labor attempted to collect qualitative reviews of industry certifications in 2012 through a special initiative called the "Credentials Forum"; in a testament to the transient nature of digital media, few traces of this initiative still exist, though it was referenced at the time in a Government Accountability Office (GAO) report (United States Government Accountability Office, 2014). While it is clear that review data exist, it is less clear how they could be effectively organized and used in accordance with a quality framework. AI large language models could be used to parse reviews and flag credentials for which major quality issues exist, though given the subjective nature of reviews it would be prudent to ensure that reviews are well-balanced against other sources of data on quality.

Data Exist with Transaction Costs: Higher Education Administrative Records and Student Information Systems

Institutions of higher education – as well as non-higher-education training providers and credential issuers – generate various types of records about their operations, including through student information systems that contain data on course registrations and descriptions, as well as syllabi and program descriptions that may be posted to course or university websites or otherwise archived. Most of these electronic records are housed in datasets built by various vendors to the higher education community; a few notable examples include products by Anthology (formerly Blackboard), Peoplesoft, and Ellucian. These records can be consulted for evidence of the skills taught in courses leading to a credential. While there is great variation in the structure, content and depth of syllabi depending on the preferences of the instructor who writes it, there is substantial precedent for using syllabi as primary source material for the analysis of what is taught – in fact, a large academic dataset, the Open Syllabus Project, is being used to conduct meta-analyses of the entire curriculum of American higher education.

The developers of student information systems treat all data contained within their platforms as confidential, as is required by law. Higher education institutions would have to follow their own internal processes for determining whether data could be shared with researchers. Given the risks that are associated with sharing data with third parties, we imagine that it would be extremely difficult to get a large number of institutions to participate in projects that involve the sharing of detailed information about individual students or courses. Nonetheless, it is possible to imagine that institutions could publish their own aggregations of data from student systems, such as the distribution of grades within a program or enrollment on a course-by-course basis.

Data Exist: Credential Engine

Credential Engine is a platform through which credential issuers can "publish" their credentials by providing data about credentials in a standardized format. Credential Engine asks institutions contributing data to use a common syntax for describing their credentials, known as Credential Transparency Description Language (CTDL). Attributes of credentials that end up being published to the Credential Registry include accreditation status, field of study, degree/credential level or type, and associated competencies. Simply publishing data to a publicly accessible dataset like Credential Engine may be considered an indicator of program quality in some frameworks.

Data (Largely) Do Not Exist: Alumni Surveys

Increasingly, higher education institutions have been conducting surveys of program alumni asking them to rate the applicability of what they learned through their credential to their actual experiences in the labor market. While such surveys do not follow a common format across institutions, they nonetheless provide customized feedback to higher education administrators about the labor market alignment of their curriculum. Results of alumni surveys are generally kept confidential and may not be representative of an institution's entire student population.

Data Do Not Exist, and Would be Difficult to Create: Performance on Exams

One could argue that in an ideal world, the knowledge and skills gained through a credential would always be assessed in a standardized manner that would allow for the direct comparison of programs and fields of study on the basis of how much individual students learned. Such a proposal would meet resistance from some practitioners and program faculty who would claim that even attempting such standardization of assessment would deprive students of the ability to specialize their credentials and learning outcomes according to their interests, for example by selecting a unique set of elective courses. However, standardized testing could be limited to even just core skills and competencies that one would expect to learn at any institution offering a given degree. This model exists to some extent in fields covered by professional licensure requirements, and indeed in some cases it may be possible to compare credentials in some fields on the basis of the percentage of students who pass a licensure exam. However, such fields are the exception, not the rule; at present, few learners complete assessments that could be used to compare performance to program completers at other institutions. Therefore, we would expect to see assessment performance used as a quality criterion only for frameworks that cover a specific field in which an assessment instrument already exists, or in the context of a national system of education where all credential completers must complete standardized assessments.

The Gap Between Data and Metrics

In summary, we see a wide gap between what is readily available for researchers and others who might wish to gauge the quality of individual credentials to access and what credential quality frameworks tell us that credential quality stakeholders should be evaluating. In Table 4 below, we summarize how fuzzy the match between concepts that appear in the datasets described above can be compared to the metrics specifically called for in frameworks, and the many types of data that frameworks call for evaluators to consider despite having no equivalent in the datasets described above.

Table 2. The Gap between Data and Metrics

Concepts that can be imperfectly matched	Potential equivalences in data systems
Labor market alignment in terms of skills	Labour market alignment in terms of occupation
Long-term earnings outcomes	Earnings outcomes, but typically constrained by time or geography
Stackability with all types of other credentials	Upward transfer and completion of degrees
Equity and access metrics	Completion rates

Framework concepts that are difficult or impossible to match	(No equivalence in data systems)
Employer/industry recognition	
Assessment of learning and competencies gained	
Broad social outcomes such as civic engagement	
Qualifications of instructors	
Demographic equity in outcomes	
Student satisfaction	

There are still no data to address many of the elements of credential quality identified in U.S. and global frameworks, though it is certainly possible for evaluators to track down some of these metrics on a case-by-case basis from individual programs. While data systems are evolving and should continue to evolve in favor of permitting further analysis of credential quality data in coming years, we still lack systematically collected variables related to many of the elements that commonly come up in frameworks.

Prospects for Improving Data Standardization and Accessibility

One challenge for credential quality framework designers and implementers to overcome is substantial diversity among credentials that complicates the development and implementation of frameworks. For example, measures focusing on the quality of instruction are likely to face a dead end when assessing industry certifications that can be obtained solely on the basis of self-study, such as the A+ industry certification offered by the Computer Technology Industry Association (CompTIA). Perhaps even more severe challenges may face any effort to assess the quality of occupational licenses, the rigor of which is determined by governmental entities. While industry certification bodies normally publish the body of knowledge that their examination is intended to cover (i.e. the exam "blueprint"), there is significant variation in the comprehensiveness and detail of such publications. Heterogeneity in delivery formats can also complicate efforts to measure the quality of certificate programs offered by professional associations, for-profit training providers, non-profit organizations, and all types of colleges alike.

Ensuring the consistent use of a common nomenclature for describing different types of non-degree credentials would certainly help organizations aiming to implement frameworks. There has been important progress towards convergence in the terminology used to distinguish between different types of non-degree credentials, advanced by organizations such as Workcred that have distributed a framework for describing credentials, and conceptual papers such as Chris Mullin's recent survey of credential taxonomies used in federal surveys and proposed taxonomy reforms (Mullin 2024). Organizations with a history of encouraging the adoption of shared standards such as 1EdTech or Credential Engine could push for further standardization, not just with respect to how credentials are classified, but also with respect to the measurement of outcomes that could be analyzed through frameworks.

Once data are standardized, they also must be made accessible to researchers and organizations positioned to gauge quality. To this end, there may be a role for membership associations to encourage a cultural shift towards openness and data sharing and for the creation of legal frameworks that mitigate the risks to

individual privacy associated with sharing data outside of organizational boundaries. There may also be technical barriers to overcome, such as the creation of secure data systems or data enclaves that allow for the transfer and analysis of personal information about learners and upgrades to student information systems that permit institutions to capture more and higher-quality data on learners. Cooperative efforts to enable data sharing with trusted third parties such as CredLens are promising, but not yet at a scale to facilitate comprehensive analysis of credentials available across a region or sector.

CONCLUSION

We see clear evidence that interest in non-degree credentials is growing throughout the world. This interest spans many stakeholders, including education and training providers, learners and government agencies. As attention to non-degree credentials grows, so does concern about the quality of those credentials.

While concern is widely shared, we can see that governments and education and training stakeholders are responding to quality concerns differently to suit their own national contexts. This is the case because each system has its own DNA – a distinct mix of institutions, policies and priorities. Levers exist in some systems that do not exist in others – for example, in some European countries there is a relatively high degree of financial support for training providers that is provisioned directly by public agencies, which is a powerful lever to improve quality if governments can agree on what constitutes a quality non-degree credential.

The United States lacks key elements of policy infrastructure found in other systems – e.g., it does not have a national registry of providers and qualifications, a national qualifications framework (efforts of a recently-established voluntary organization, U.S. Qualifications Framework, notwithstanding), or a national quality assurance body that has commenced the assimilation of short-term credentials into its norms and practices. However, the United States does have two distinctive capabilities with respect to non-degree credential quality that will prove to be important in future.

- First, the United States has invested heavily in the development of public administrative data systems, and in linking these systems. These systems exist at the state and national levels. At present, state-wide longitudinal data systems are arguably not being exploited to their full potential by researchers and policymakers – yet interest in using SLDSs on the part of researchers is growing and governments are finding new ways to use data held in SLDSs to inform policy. Progress is also being made to overcome data quality issues and link together data systems to follow individual learners across borders. And, there is wide agreement that these systems should provide a foundation for outcome-based quality metrics.
- Second, there is a plethora of collaborative and voluntary initiatives that aim to create what public authorities have not – e.g., a national registry of credentials (e.g., Credential Engine), interoperability among record systems (1EdTech and the T3 Innovation Network), metrics of quality (state credential of value frameworks, EQOS), and norms of good practice in the design and delivery of short-term credentials (e.g., UPCEA's Hallmarks of Excellence in Credential Innovation), and standards of quality among providers (Higher Learning Commission's Credentials Lab).

Neither of these advantages has the capacity to fully address quality concerns surrounding non-degree credentials. We have discussed some of the important limitations of administrative data systems already: inadequate coverage across state lines, differing definitions of credentials, limited or no coverage of institutions not required to report data (i.e., outside the IPEDS or WIOA data universes). There are also limitations in the nature of the data collected and tracked in administrative data systems, particularly a lack of information on non-earnings outcomes such as retention or job satisfaction. It is also difficult to gauge the

impact of credentials that are commonly "stacked" with other credentials through administrative data. Voluntary initiatives have their own drawbacks: it is difficult to impossible to compel training providers to identify individuals who have completed their credentials if they believe that the resulting analysis will not reflect on them favorably. And, attempts to collect and analyze data not furnished by credential issuers, such as EQOS, are based on lower-quality data than what exists in administrative datasets.

Therefore, we can conclude that while progress is being made on many fronts, there is still much to be done. The widely expected availability of Pell Grant funding for short-term credentials could be a catalyst for change in the American system, creating policy incentives for either non-profit organizations to gain access to and analyze administrative data to assess quality or motivating further public investment in the analysis of outcomes data (and the expansion of data currently held in administrative data systems). Even if we see enhanced "scorecards" documenting labor market outcomes associated with particular credentials, there will likely remain a place for private/non-profit efforts to assess quality given the unique viewpoints that private actors are likely to hold about which dimensions of quality should be prioritized. Such private actors are likely to help the prevailing definition of credential quality to evolve over time as new ideas emerge about how to weigh labor market returns with other personal and societal objectives that can be advanced through the pursuit of new credentials.

APPENDIX A. SURVEY OF HIGHER EDUCATION PROFESSIONALS CONDUCTED WITH UPCEA

George Washington University/UPCEA
Non-Degree Credential Quality Project

We wish to learn how higher education institutions are assuring the quality of the non-degree credentials they offer to learners. The insights you share will help to inform programming at the 2024 UPCEA/AACRAO Convergence meeting and research the George Washington University Program on Skills, Credentials and Workforce Policy is carrying out with support from the Strada Education Network. Institutions and respondents participating in the survey will not be identified in this project's results or findings.

We have developed a brief web-based, fixed-response survey. In the first section, we ask eight questions about non-degree credentials for which credit is awarded, but which are delivered outside the scope of Title IV federal student aid and institutional accreditation. In the second section, we ask eight questions about non-credit instruction for which a credential is awarded.

We define "non-degree credentials" (NDCs) as all post-secondary credentials other than associate, baccalaureate, and graduate degrees. Examples of NDCs include for-credit and non-credit certificate programs as well as industry certifications, badges, apprenticeship programs, and micro-credentials.

At the end of the survey, we provide a comment box for those who wish to contextualize or elaborate upon their answers. If you are not the right person to answer these questions for your institution, please feel free to forward the survey to someone better positioned to answer.

Please return the survey no later than **Friday, August 16th**. If you have questions, please contact Amy Heitzman at aheitzman@upcea.edu, or Thomas Weko at thomas.weko@gwu.edu.

Part One: Non-degree credentials awarded based upon credit-bearing instruction [If you have no credit-based instruction leading to NDCs, skip to Part Two]

1. Are there standards and procedures to monitor and assure the quality of credit-based non-degree credentials at your institution? [if no, skip to question 6]
    a. Yes
    b. No
    c. Under development
    d. Not sure

2. In your institution, at what level are standards and procedures to assure the quality of credit-based non-degree credentials developed and approved?
    a. an institutional-wide level
    b. at the college/faculty level (e.g., College of Education)
    c. at the department level
    d. at the instructor level

3. Are standards and procedures for the review of credit-based NDCs:
    a. A modified version of the standards and procedures you use for accredited (Title IV eligible) credentials? [if yes, skip to Q7]
    b. Separate, distinct, purpose-built standards and procedures for NDC?

4. (If 3b. is checked) If separate and distinct standards and procedures are being used, have consultations and decisions with your institution been shaped by: [*check all that apply*]
    a. Models/examples/consultation with other higher education institutions
    b. Quality standards and procedures developed by professional societies or industry bodies
    c. Quality frameworks developed by associations, foundations, or national research organizations

5. (If 4c. is checked) Please identify which have been important resources in the development of standards and procedures [check all that apply]:
    a. *Hallmarks of Excellence in Credential Innovation*, UPCEA
    b. *Non-Degree Quality Conceptual Framework,* Rutgers University, Center for Employment and Education
    c. AACRAO, *Alternative Credentials: Considerations, Guidance, and Best Practice*
    d. *The Non-Degree Credential Quality Imperative*, National Skills Coalition
    e. *Quality Dimensions for Connected Credentials*, American Council on Education
    f. *Expanding Opportunities: Defining Quality Non-Degree Credentials for States,* National Skills Coalition
    g. *Educational Quality Outcomes Standards,* JFF and Burning Glass Institute
    h. "Credential of Value" frameworks published by multiple state governments
    i. [Other – please identify]

6. Are credit-based non-degree credentials included in the same student information system (SIS) as your accredited degree and certificate offerings? (Check all that apply)
    a. Yes, included in the SIS
    b. Not in SIS, but in another institutional record system, e.g., customer relationship management system
    c. Not presently in SIS, but their inclusion is planned
    d. Not in SIS, no plans at present for inclusion

7. Do your institutional data systems permit you to reliably and consistently identify these aspects of credit-based non-degree programs? (Check all that apply)
    a. Who begins an NDC
    b. Who completes/does not complete an NDC
    c. Which learners are "stacking" non-degree credentials

8. Please indicate which statement(s) describes the data linking capacity and plans of your institution or unit for credit-based non-degree credentials (check all that apply):
    a. We can link learner credential data to unemployment insurance (UI) data
    b. We can link learner credential data to state longitudinal education data system (SLDS)
    c. We can link learner credential data to private data resources (National Student Clearinghouse, LinkedIn)
    d. We cannot link at present, but plan to develop this capacity
    e. We do not have a plan to develop a linkage capacity

Part Two: Non-degree credentials awarded based upon non-credit instruction

1. Are there standards and procedures to monitor and assure the quality of non-credit, non-degree credentials at your institution? [if no, skip to question 6]
    a. Yes
    b. No
    c. Under development
    d. Not sure

2. In your institution, at what level are standards and procedures to assure the quality of non-credit-based non-degree credentials developed and approved?
    a. an institutional-wide level
    b. at the college/faculty level (e.g., College of Education)
    c. at the department level
    d. at the instructor level

3. Are standards and procedures for the review of non-credit-based NDCs:
    a. A modified version of the standards and procedures you use for accredited (Title IV) credential offerings?

b. Separate, distinct, purpose-built standards and procedures?

4. (If 3b. is checked) If separate and distinct standards and procedures are being used, have consultations and decisions with your institution been shaped by: [*check all that apply*]
    a. Models/examples/consultation with other higher education institutions
    b. Quality standards and procedures developed by professional societies or industry bodies
    c. Quality frameworks developed by associations, foundations, or national research organizations

5. (If 5c. is checked yes) Please identify which have been important resources in the development of standards and procedures [check all that apply]:
    a. *Hallmarks of Excellence in Credential Innovation*, UPCEA
    b. *Non-Degree Quality Conceptual Framework,* Rutgers University, Center for Employment and Education
    c. AACRAO, *Alternative Credentials: Considerations, Guidance, and Best Practice*
    d. *The Non-Degree Credential Quality Imperative*, National Skills Coalition.
    e. *Quality Dimensions for Connected Credentials*, American Council on Education
    f. *Expanding Opportunities: Defining Quality Non-Degree Credentials for States,* National Skills Coalition
    g. *Educational Quality Outcomes Standards,* JFF and Burning Glass Institute
    h. "Credential of Value" frameworks published by multiple state governments
    i. [Other – please identify]

6. Are non-credit-based, non-degree credentials included in the same student information system (SIS) as your accredited degree and certificate offerings? (check all that apply)
    a. Yes, included in the SIS
    b. Not in SIS, but in another institutional record system, e.g., customer relationship management system
    c. Not presently in SIS, but their inclusion is planned
    d. Not in SIS, no plans at present for inclusion

7. Do your institutional data systems permit you to reliably and consistently identify these aspects of non-credit, non-degree programs? (Check all that apply)
    a. Who begins an NDC
    b. Who completes/does not complete an NDC
    c. Which learners are "stacking" non-degree credentials

8. Please indicate which statement(s) describes the data linking capacity and plans of your institution or unit for non-credit, non-degree credentials (check all that apply):
    a. We can link learner credential data to unemployment insurance (UI) data
    b. We can link learner credential data to state longitudinal education data system (SLDS)
    c. We can link learner credential data to private data resources (National Student Clearinghouse, LinkedIn)
    d. We cannot link at present, but plan to develop this capacity
    e. We do not have a plan to develop a linkage capacity

If there are comments you wish to share to elaborate upon or contextualize your responses to these questions, please provide those here.

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Prepared with the support of the Strada Education Foundation

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