



RUTGERS EDUCATION AND EMPLOYMENT RESEARCH CENTER

PROMOTING QUALITY, CREATING VALUE:
ORGANIZATIONAL INFLUENCES IN THE
NON-DEGREE CREDENTIAL MARKETPLACE

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INTRODUCTION

As non-degree credentials (NDC) become increasingly common offerings in the education and training marketplace, the importance of developing systems to ensure their quality is a policy imperative. NDCs are typically work-related credentials, including certificates, licenses, certifications, registrations, badges, and microcredentials, awarded by a wide range of organizations, including educational institutions, professional associations, employers, and others.¹ Recent counts show that in the US there are an estimated 700,000 credentials, of which 500,000 – the vast majority – are NDCs.² Yet, few clear guideposts exist for determining the quality of NDCs, leading to confusion in the marketplace. Individuals are left at risk of investing time and money in credentials that do not put them on a pathway to their career goals. Employers are left confused and uninformed about which credentials are meaningful indicators of the skills they are seeking in the workforce. Policymakers are left without the information they need to make sound decisions on how to effectively invest in education and training. In this environment, it is essential to create a more systematic approach to ensuring quality. But how?

Developing a systematic approach to assessing the quality of NDCs requires several important steps. First, we must define what is meant by quality, drawing on the commonalities across various definitions of what determines a quality credential. Second, we must dig deeper to examine how quality in an NDC is created and influenced, such as through transparency initiatives or efforts to promote quality standards. Understanding these influences is particularly important for the many new and emerging NDCs, which are not well established or well known in the credential marketplace. Finally, it is important to recognize that NDCs exist in a marketplace comprised of organizations that award NDCs as well as those that have some review or oversight over NDCs such as educational institutions, training providers, companies, unions, and others. Through their interactions, these organizations play an important role in both defining and promoting elements of NDC quality. Understanding these organizations and how they influence the quality of NDCs is essential to creating better systems to promote NDC quality.

¹Appendix A provides a basic definition of NDCs.

²Credential Engine. (2021). *Credential engine schemas handbook*. CE Technical. Retrieved from <https://credreg.net/ctdl/handbook>

To create a more systematic approach to NDC quality, this paper addresses two overarching questions: Who are the organizational actors in the NDC marketplace? How do they influence quality? We begin with an examination of how quality has been conceptualized in the literature and how it will be conceptualized in this discussion. Next, we consider potential influences on NDC quality based on the actions of organizations in the credential marketplace. We then provide a roadmap of the credential marketplace that highlights both the organizations that award different types of NDCs and the organizations and initiatives currently involved in overseeing NDC quality. The paper ends with a discussion of implications for building on this existing infrastructure to create a more robust and coherent system to promote quality in the NDC marketplace, including ways to define, measure, create, and ensure quality.

DEFINING QUALITY

While consensus exists that ensuring quality is essential, no one agreed upon way exists to define quality. A clear conception of quality is needed in order to address approaches to promoting NDC quality. We examined several recent efforts to define credential quality to develop our definition of the term in a way that seeks to draw together identified themes under a single umbrella.

Based on our view of the definitions, it is essential to note two related factors: First, the concepts of “quality” and “value” tend to be used interchangeably in the language, but they are not exactly the same in scope. Second, there is a distinction between the design of the credential and the *outcomes* of the *credential*. “Value” generally is used in respect to outcomes, while “quality” tends to be conceptualized broadly to refer to both an NDC’s design and its outcomes. A review of recent national efforts to define quality provides some insights on these distinctions and how they will come to bear on our further discussion of quality.

In 2018 the Lumina Foundation convened the Quality Credentials Task Force to better define credential quality. The result is a multilayered conceptual model of credential quality “from design to outcomes.” This model includes elements that relate to credential design (e.g., dynamic quality assurance system, student-centered policies and practices, and intentional program design) as well as elements that reflect outcomes, including individual and societal outcomes.³ Similar to Lumina’s Task Force, Rutgers developed a conceptual model for defining key elements of NDC quality that includes elements directly related to credential design – content, instructional strategies, assessment,

³Lumina Foundation. (2019). *Unlocking the nation’s potential*. Indianapolis, IN: Author. Retrieved from <https://www.luminafoundation.org/wp-content/uploads/2019/08/unlocking-the-nations-potential.pdf>

accessibility, portability – and outcomes. In the Rutgers model, outcomes are understood to include the actual competencies credential holders possess (e.g., productivity, work abilities) as well as outcomes of value to the credential holder (e.g., higher earnings, advancement), employers (e.g., better recruitment, retention, diversity), and society (e.g., more equity, better health).⁴

Governmental bodies have shown great interest in the development of definitions and measures of NDC quality, and many states have already engaged in efforts to create them. One such effort developed by the National Skills Coalition (NSC) in consultation with 12 US states offers a definition to measure NDC quality that again includes elements of both design and outcomes.⁵ The NDC's model specifies a credential's design must be associated with substantial job opportunities in the labor market. It also specifies that a credential's outcomes must demonstrate holders' mastery of specific competencies and a history of leading to employment and increased earnings. In addition, while not essential for the NSC definition, a quality outcome of a credential includes whether the credential leads to further educational pathways.

Another state-level effort is that of the Education Strategy Group (ESG), which provides guidance for states on identifying and promoting high quality non-degree credentials.⁶ This guidance includes identifying "priority" credentials associated with in-demand, high-skill, and high-wage occupations used in hiring; validating the preliminary list of priority credentials through data, including employer surveys and focus groups; incentivizing attainment of priority credentials through funding and communication; and reporting on the attainment of priority credentials by integrating data collection and accountability systems. Implicit in this process is the idea that quality credentials are those with valuable outcomes – those used in hiring for positions in high-demand, high-skill, and high-wage occupations.

Further illustrating the conceptualization of value as a reflection of outcomes, the Gates Postsecondary Value Commission (PVC) developed a definition of value for postsecondary education that is measured in terms of economic returns for students, economic returns for society, and non-economic returns for students and society. A major emphasis is on the economic returns for students, which are measured based on a set of thresholds for earnings – these range from a

⁴Van Noy, M., McKay, H., and Michael, S. (2019). *Non-degree credential quality: A conceptual framework to guide measurement*. Piscataway, NJ: Education and Employment Research Center, Rutgers University. Retrieved from <https://smlr.rutgers.edu/faculty-research-engagement/education-employment-research-center-eerc/eerc-projects/non-degree>

⁵Duke-Benfield, A., Wilson, B., Kaleba, K., & Levantoff, J. (2019). *Expanding opportunities: Defining quality non-degree credentials for states*. Washington, DC: National Skills Coalition.

⁶Education Strategy Group. (2019). *Building credential currency: Resources to drive attainment across K-12, higher education and workforce development*. Washington, DC: Author. Retrieved from <http://edstrategy.org/resource/building-credential-currency/>

minimum level of quality at which credential holders are no worse off financially after attending (that is, able to earn high-school-level wages and can pay off any debt they incurred in the program), to a level at which the credential holder achieves economic gain, to a level at which the holder is able to equitably accrue wealth.

Across these definitions, some key observations about quality NDCs emerge. The definitions point to the distinction between the design of the credential and the outcomes of the credential, as well as the idea that value is a reflection of positive outcomes. Rutgers and Lumina offer multifaceted definitions of quality that distinguish between elements related to a credential's design and those related to its outcomes. Likewise, the NSC and ESC definitions specify that programs be aligned with high demand in the labor market and lead to valuable outcomes. The PVC definition discusses "quality, affordable credentials" as an element that leads to value in terms of outcomes. With these distinctions in mind, this paper will refer to the two concepts of "quality design" and "outcomes of value" when discussing credentials and the influences on them. The remainder of this paper discusses the influences that translate a credential with a "quality design" into a credential that holds "outcomes of value," noting that a quality design does not automatically guarantee an outcome of value.

INFLUENCES ON QUALITY AND VALUE

The NDC marketplace is complex, with multiple potential influences at work. The NDC marketplace includes organizations that provide instruction in preparation for or award NDCs as well as organizations that seek to oversee or promote NDC quality. As such, the marketplace is influenced through organizational efforts that promote transparency or through institutional processes that promote quality standards, e.g., regulation, norm setting, and intra-organizational mimicry. Each of these influences operate simultaneously within the NDC marketplace, shaping both the quality of NDC design and how NDCs are translated into outcomes of value.

The influences on NDC quality and value are motivated by different assumptions about how markets function to promote quality. They also operate through different organizational structures and actions in practice. In this section we discuss how these underlying perspectives and factors operate within the NDC marketplace.

TRANSPARENCY EFFORTS

Providing consumers with information about the design and outcomes of NDCs currently available in the marketplace is a key strategy for influencing quality. The idea motivating these efforts, which are carried out by a range of national organizations, is grounded in traditional economic perspectives on markets based on the belief that more informed consumers – in this case, both potential credential seekers and employers – will make better decisions about NDCs by selecting credentials that are high quality and valuable. In doing so, well-informed consumers help the credential market function more efficiently by promoting the NDCs perceived to have the best outcomes. This approach to quality is based in rational choice theory – the idea that, once information is made available and accessed by the consumer, consumers will choose the NDC that is most likely to bring them the greatest benefit (e.g., positive outcomes) at the lowest risk (e.g., tuition cost, time to completion). Policy based on this approach seeks to influence quality and value in credential markets by providing information on credential design and outcomes to guide consumers in their risk/benefit analyses. To make this work, however, mechanisms need to be available to communicate NDC information to both potential credential seekers and employers.⁷

INSTITUTIONAL MECHANISMS

Institutional perspectives on how markets operate highlight additional means by which NDC quality may be influenced. A key perspective in this view is that markets are based in social structures and involve institutions, cultures, and social networks and relationships. Social networks and relationships based on trust are foundational to this view of how markets function.^{8,9} In addition to, or embedded in, trust is the importance of legitimacy – that is, the idea that education and credentials have value to the extent they are seen as offering legitimacy, a status granted to them when they are able to meaningfully classify occupational roles in society.¹⁰

⁷National Conference of State Legislatures. (2021, July 1). *Credential transparency*. Retrieved from <https://www.ncsl.org/research/education/credential-transparency.aspx>

⁸Fligstein, N., & Dauter, L. (2007). The sociology of markets. *Annual Review of Sociology*, 33, 105–128. <https://doi.org/10.1146/annurev.soc.33.040406.131736>

⁹Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *The American Journal of Sociology*, 91(3), 481–510. <https://doi.org/10.1086/228311>

¹⁰Meyer, J. (1977). The effects of education as an institution. *American Journal of Sociology*, 83(1), 55–77. <https://doi.org/10.1086/226506>

Viewed through this institutional lens, the credential marketplace is made up of organizations that both influence and are influenced by institutional dynamics related to legitimacy.¹¹ These dynamics include regulatory influences that encourage compliance with rules or laws; normative influences that encourage conformity to expectations or professional norms; and cultural-cognitive influences that encourage conformity to widely held beliefs, which are often displayed through mimicry of other organizations.^{12,13} Within this context, three key institutional mechanisms emerge as potential influences on quality in the NDC marketplace:

Regulation. Government regulation can affect the development and use of NDCs, most commonly through funding. Although NDCs generally receive government funds indirectly through student aid programs, such funding lines directly influence NDCs through funding requirements and restrictions. Federal or state governments may limit using public funding to specific NDCs based on certain quality criteria or establish approval processes to monitor such training. In addition, government may regulate the use of NDCs for occupational entry, requiring that the individual holds certain credentials before practicing a specific occupation. Such occupational requirements are frequently found in fields where public health and safety is involved, e.g., health care and some building trades. Occupational regulations are the strongest influence on the utility value of a credential, and they therefore play a major role in influencing the quality of a credential's design (competencies needed) and outcomes (employment and wage opportunities).

Norm Setting. Normative influences, especially the norms set by professional and industry organizations, can have a strong influence on NDC quality. Organizations indicate to their membership that an NDC is significant and important to the field by endorsing it or even offering it themselves. The organization's accumulated reputation and its membership's trust in its expert knowledge and authority validate the standards set and recommendations made by the organization. Educational institutions in particular have the authority to set norms as they create and validate roles in society through their credentials.¹⁴ They also build their reputation and trust through active engagement and relationship building with members of the community, such as local employers.¹⁵ As such, norm setting can influence the design of credentials as well as their outcomes.

¹¹ Cai, Yuzhuo. (2013). Graduate employability: A conceptual framework for understanding employers' perceptions. *Higher education*, 65. 457–469.

¹² Scott, R. (2008). *Institutions and Organizations*. (3rd ed.) Los Angeles, CA: Sage Publishing.

¹³ DiMaggio, P., and Powell, W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields, *American Sociological Review*, 48(2), 147–160. <https://doi.org/10.2307/2095101>

¹⁴ Meyer, 1977.

¹⁵ Deil-Amen, R., & Rosenbaum, J. (2004). Charter building and labor market contacts in two-year colleges. *Sociology of Education*, 77, 245–265. <https://doi.org/10.1177/003804070407700303>

Mimicry. The use of NDCs by organizations and employers may be shaped by industry policies, recognition of changes in industry-wide standards, or phenomena they observe taking place at other organizations. Widely held beliefs and practices about credentials begin as ideas or behaviors that spread across organizations and employers. Each new institution views the norms of others like them, then considers adopting them as their own through a process of public learning (Cai, 2013). The result may be the further adoption or adaptation of new credentials; the creation of new policies and practices, e.g., requiring specific credentials in hiring decisions; the addition of new competency requirements to an existing credential; or, in higher education, recognition that a specific NDC is a valid foundation for granting course credits.

The strength of these different influences and how they operate varies by context, including industry sector and geographic locale. Industries have different dynamics related to the role of credentials. For example, health care is a highly regulated field with well-established norms and reliance on credentials that signal the importance of specific technical competencies and capacities.¹⁶ NDCs in health-care-related occupations are therefore more likely to have standardized requirements in terms of outcomes of value regardless of locale. Less regulated fields, like information technology, tend to have less standardized value outcomes but may be strongly influenced by local norm setting. In fact, given the strength of some industry norms, mimicry may be the greatest influence shaping and promoting value outcomes in such cases. In addition to variation by industry, how these influences operate may vary across geographic locales depending on factors like the mix of industries in the labor market and the average education level of the labor force. Some states and locales have more firmly established regulations and norms around the use of NDCs that encourage employers to adopt the use of certain credentials.

In the next sections we describe the range of organizations that award NDCs and the organizations that influence NDC quality. The review showcases the diversity of organizational types involved with NDCs as well as the diversity of ways organizations influence NDC quality and value. A baseline understanding of these organizations and their different influences can help illuminate opportunities to build more robust and comprehensive systems to promote NDC quality.

¹⁶Bailly, F. (2006). The role of employers' beliefs in the evaluation of educational output. *The Journal of Socio-economics*, 37. 959–968.

ORGANIZATIONS THAT AWARD DIFFERENT TYPES OF NDCS

When discussing the NDC marketplace, it is essential to recognize the diversity in NDCs and how that relates to the organizations that award NDCs. Across the types of NDCs, including certificates, certifications, licenses, apprenticeships, and badges, there is wide variation in the following elements: the mode of learning, including classroom-based, work-based, and self-guided curriculum; the award criteria, including passing an exam, completing a training program, or completing on-the-job training; the requirements for ongoing maintenance of the credential, such as completion of continuing education units (CEUs); and the goals of the credential, including preparing individuals for entry into an occupation, conveying specific skills to bolster an individual's entry into a field, and promoting advancement in a field.

In addition to these distinctions, NDCs can also vary across the organizations that award them or provide the instruction that helps individuals attain them. These organizations have different missions and operate across different sectors including education, industry, and government. They include the following types of organizations:


Educational institutions

Community colleges are located in local areas and seek to meet regional workforce needs by providing technical courses that frequently result in a certificate or prepare individuals for certification or licensure.^{17,18} Four-year colleges also provide programs in these areas and may award NDCs as part of their program offerings.

Private training providers

An array of private postsecondary nonprofit or proprietary schools offers NDCs to prepare students for the workforce. Online providers like EdToGo and Coursera are rapidly increasing the number of programs they offer and the range of work-related fields students can study. Similarly, bootcamps have emerged as a form of intensive hands-on learning experiences in certain fields.

Private companies

Employers have traditionally provided training to their employees. This training can sometimes lead to a company-issued certificate. Recently, large companies like Google have begun to offer certificates leading to skills development for entry-level positions, such as IT support and data analytics. 

¹⁷CCCCO. (2019). *2019 Program and course approval handbook*. (7th ed.) Sacramento, CA: California Community Colleges Chancellor's Office, 26, 114. Retrieved from https://www.cccco.edu/-/media/CCCCO-Website/Reports/CCCCO_Report_Program_Course_Approval-web-102819.pdf?la=en&hash=06918DD585E9F8C0805334FEA3EB1E6872C22F16

¹⁸North Carolina Community Colleges. (n.d.). *1D SBCCC 300.5 course standards*. Retrieved from <https://www.ncccommunitycolleges.edu/sbccc/1d-sbccc-3005-course-standards>

Professional and industry associations

With their close linkages to the field, professional and industry associations are frequently involved in awarding NDCs. They often design and award assessment-based certifications using their own established standards of practice. They also are involved in influencing and setting standards for the awarding of state licenses and for NDC training by other providers.

Union training funds

One of the benefits of union membership is union-supported training to help members advance their careers. Support may be in the form of training funds or the provision of instruction for certificates including through apprenticeship opportunities.

State occupational licensing departments

With the goal of protecting the public, state departments frequently regulate entrance into specific occupations through occupational licensing. State licensing and embedded educational requirements set the qualifications for licensure and regulate the practice of a particular occupation in that state. Most states require documentation of education and training or successful completion of an exam. Some might require experience in the field and additional documentation, training, or testing.

NDCs vary in terms of the types of organizations that award them. Certificates are awarded by the widest variety of organizations, from educational institutions and private companies to local for-profit training schools. Newly emerging badges and microcredentials are offered by a similarly wide range of organizations. Other types of NDCs, however, are offered by a more limited group of organizations. Certifications are generally awarded by professional and industry associations. Occupational licenses are awarded by state governments. Apprenticeships are also awarded by the state as well as (though less frequently) employers, unions, and professional associations. Instruction for apprenticeships is offered by a range of organizations including trade and industry groups, corporations, nonprofit organizations, educational institutions, unions, and joint labor-management organizations.¹⁹ Table 1 summarizes the major organizational actors and indicates which ones provide instruction/ prepare individuals for NDCs (I) which ones award NDCs (A).

¹⁹ Apprenticeship. (n.d.) *What is an industry-recognized apprenticeship program?* Apprenticeship.gov. Retrieved from <https://www.apprenticeship.gov/employers/industry-recognized-apprenticeship-program>

TABLE 1: ORGANIZATIONS THAT PREPARE AND/OR AWARD NDCS, BY TYPE OF NDC

ORGANIZATIONS	TYPES OF NDCS				
	CERTIFICATE	CERTIFICATIONS	LICENSURE	APPRENTICESHIPS	BADGES/ MICROCREDENTIALS
Education institutions, including community colleges and 4-year colleges (credit and noncredit programs)	A, I	I	I	I	A, I
Private training providers, including proprietary schools, online providers, and bootcamps	A, I	I	I		A, I
Private companies	A, I	I	I	I	A, I
Union training funds	A, I			I	
Professional and industry associations		A			
State governments			A	A	

A = AWARD NDC, **I** = INSTRUCTION FOR NDC

Each type of organization that awards NDCs is subject to its own range of influences. As a result, NDCs awarded across a wider range of organizations, like certifications and badges, are subject to greater variation in the influences on their quality. This is further discussed in the next section.

ORGANIZATIONS THAT INFLUENCE NDC QUALITY AND VALUE

The marketplace is exceedingly complex. This complexity is particularly apparent when reviewing the multiplicity of organizations involved in NDC quality, including those organizations that influence the NDC marketplace and organizations that award NDCs. In this section, we discuss several organizations that influence NDC quality and value, grouping them according to the general type of organization and the institutional mechanism through which they tend to exert influence. For each organization, we discuss the types of NDC it influences, the elements of quality and value it influences, and the current reach of its influence. Given the complexity of the marketplace, we do not intend for this discussion to serve as a comprehensive listing of all organizations, but rather to offer a guide to the range of organizations comprising the landscape.

ORGANIZATIONS PROMOTING TRANSPARENCY

Transparency is one of several critical factors that affect non-degree credentials in the marketplace. The establishment of a common lexicon for credential design and desired outcomes is a major part of transparency. The assumption is that the more accessible and detailed information is about a credential, the greater likelihood potential students will make “good” (rational) decisions about their education and training. Similarly, easily accessible information about NDC quality help potential employers determine whether an applicant with a particular credential has the requisite skills for a position. The following organizations and initiatives promote NDC transparency:

Credential Engine (CE). CE is a nonprofit organization with the goal of providing clear information on the credential landscape.²⁰ CE uses an open-source, cloud-based Credential Registry and what it calls Credential Transparency Description Language – a vocabulary that standardizes how credentials are described – to gather information about the assessment, competencies, quality assurances, and market value of NDCs.²¹ CE’s reach extends to all NDC types, including degrees, diplomas, licenses, certificates, certifications, and badges, as well as to all organizations that award NDCs. CE seeks to serve as a platform for providing this information but does not offer a particular definition or measure of quality.

State Departments of Labor, Eligible Training Provider Lists (ETPL). As part of the Workforce Innovation and Opportunity Act (WIOA), departments of labor in all US states are required to create an ETPL with information on “jobs-driven” training programs to help those eligible for training funds choose a program to pursue. ETPLs typically include information on program characteristics and student performance outcomes, and they list a wide range of credentials, spanning all NDC types as well as all organizations that award them. However, the implementation of ETPL lists vary by state, and the lists generally include only the programs most relevant to WIOA clients.

The Council on Integrity in Result Reporting. The Council was established to provide standards in the reporting of student outcomes from certificate programs offered by the coding bootcamp industry. Council member schools report on student outcomes every six months using a standardized format that is guided by the following principles: outcome data must be actionable, verifiable, measurable, clear, transparent, and student-focused.²²

²⁰ See the Credential Registry’s definitions for each of these. Credential Engine. (n.d.). *Credential Transparency Description Language (CTDL): Types list*. Retrieved from <https://credreg.net/Page/typeslist>

²¹ Work Group. (2017). *Connecting credentials: Applying demand and supply signals*. Retrieved from <https://www.imsglobal.org/sites/default/files/Aligning-supply-and-demand-FINAL-report.pdf>.

²² Council on Integrity in Results Reporting. (n.d.). *Students spend precious time and money on their education*. Retrieved from <https://cirr.org/>

Education Quality Outcomes Standards Board (EQOS). EQOS is a nonprofit organization that has developed a framework for defining student outcomes and translating them into metrics for higher education providers of all types. The goal of this effort is to create consistency in collecting and reporting data on student learning, completion, placement, earnings, and satisfaction. This reporting is ultimately intended to help stakeholders, including students, employers, legislators, and investors, compare across programs.²³

Badging Standards and Platforms. Given the vast array of digital badges currently emerging, the IMS Global Learning Consortium developed Open Badges as a standard format for digital badges.²⁴ By establishing this standard, Open Badges offers a consistent set of information to facilitate NDC transparency and portability. An Open Badge includes the badge holders' skills and achievements; the criteria or evidence used to measure achievement; and its alignment with outcomes (a measure of quality).²⁵

Credly²⁶ and Badgr²⁷ are two web-based platforms where badge holders can post digital badges that are certified as meeting IMS's quality and interoperability standards. Digital badges posted on these platforms have been vetted for both content and usability, documenting the work that resulted in each badge.²⁸

GOVERNMENT ENTITIES

Government entities influence organizations that offer NDCs through the formal process of regulation. This influence can manifest in many forms, including funding restrictions as well as associated approval processes; organizational oversight; and standards for setting requirements for occupational entry. In this section we review a variety of government entities that directly influence organizations that award NDCs and elements of NDC quality.

State Departments of Education, Noncredit Funding Oversight. States that provide funding for some NDCs, typically for those offered via community college noncredit education, have established policy and procedures to assure that courses and programs meet educational standards. A few states have practices that provide illustrative examples of NDC oversight. For example, in California, all noncredit courses

²³ EQOS. (n.d.). *Education quality outcomes standards*. Retrieved from <https://eqos.org/>

²⁴ IMS Global Learning Consortium. (n.d.) *What are open badges?* Open Badges. Retrieved from <https://openbadges.org/>

²⁵ Rimland, E., & Raish, V. (2019). The badge ecosystems. *Library Technology Reports*, 55(2). Retrieved from <https://journals.ala.org/index.php/ltr/article/viewFile/6985/9463>

²⁶ Credly. (n.d.). *Translate learner outcomes into opportunities with digital credentials*. Retrieved from <https://info.credly.com/solution-for-higher-education>

²⁷ Badgr. (n.d.). *Issue and verify digital badges and stackable micro-credentials*. Retrieved from <https://info.badgr.com/>

²⁸ Rimland & Raish, 2019.

and programs must demonstrate they meet certain standards, including appropriateness to mission, need, curriculum standards, adequate resources, and compliance.²⁹ In Maryland, colleges typically complete initial and periodic course/program reviews, which require that noncredit programs have clear course objectives with respect to the skills and knowledge students must achieve.³⁰ In North Carolina, programs are reviewed at least every five years to ensure quality and viability and to identify areas for improvement.³¹ Iowa requires colleges to track the outcomes of these programs measured in terms of the number of students that earn noncredit occupational credentials.³²

State Departments of Labor, WIOA Funding Oversight. State departments of labor, through WIOA's funding, influence a wide range of organizations that award NDCs, including those with programs included on the ETPL. The federal government requires states to develop mechanisms to identify regional workforce demands to determine the types of training programs needed in their local area and to establish robust quality standards for determining which programs to include on their ETPLs³³. For many programs, being listed on the ETPL is vital, not only because it raises awareness by making information about the program publicly available (as discussed), but also because the WIOA restricts funding eligibility to only programs on the ETPL.

Various State Agencies, Proprietary School Oversight Agencies. Most states have departments that oversee proprietary schools (for-profit educational institutions that offer NDCs), e.g., the Higher Education Commission (Maryland), the State Board of Community Colleges (North Carolina), and the Department of Consumer Affairs, Bureau for Private Postsecondary Education (California).³⁴ All NDCs offered by proprietary schools in these states are subject to such oversight.

²⁹ CCCC. (2019). 2019 Program and course approval handbook. (7th ed.) Sacramento, CA: California Community Colleges Chancellor's Office, 103. Retrieved from https://www.cccco.edu/-/media/CCCCO-Website/Reports/CCCCO_Report_Program_Course_Approval-web-102819.pdf?la=en&hash=06918DD585E9F8C0805334FEA3EB1E6872C22F16

³⁰ Maryland Higher Education Commission. (2013). *Continuing education manual for Maryland community colleges*. (Rev. FY 2013-1). Baltimore: Author. Retrieved from <https://mhec.maryland.gov/publications/Documents/CONTINUING%20EDUCATION%20MANUAL.pdf>

³¹ North Carolina Community Colleges. (2016, 2021). *1B SBCCC 400.3 program review*. Retrieved from <https://www.ncccommunitycolleges.edu/sbcccode>

³² Iowa Department of Education. (n.d.). *Community college data reporting*. Retrieved from <https://educateiowa.gov/adult-career-comm-college/community-colleges/community-college-data-reporting>

³³ US Department of Labor (n.d.). *Requirements for training providers, program eligibility, and the state eligible*. Washington, DC: Author. Retrieved from https://wdr.doleta.gov/directives/attach/TEGL/TEGL_8-19_Attachment_I_acc.pdf; WIOA. (n.d.). *Career pathways: Using the state Eligible Training Provider List to support quality & coordination*. CLASP. Retrieved from <https://www.clasp.org/sites/default/files/public/resources-and-publications/publication-1/Career-Pathways-ETPL-memo.pdf>

³⁴ North Carolina Community Colleges. (2015). *State Board of Proprietary Schools to meet*. Retrieved from <https://www.ncccommunitycolleges.edu/news-center/news/state-board-proprietary-schools-meet-7>; Maryland Higher Education Commission. (n.d.). *Private career schools*. Baltimore: Author. Retrieved from https://mhec.maryland.gov/institutions_training/Pages/career/index.aspx; BPPE. (n.d.). *Application workshop*. Retrieved from https://www.bppe.ca.gov/schools/app_workshop.pdf

State Occupational Licensing Departments, Oversight of Licensure Processes and Standards. State licensure departments influence the ways organizations prepare people for occupations by setting or shaping the standards of licensure. This regulatory influence restricts the legal entry of individuals into occupations, though the strength of its influence varies widely across states and occupations.³⁵ Industry and occupational associations often work closely with state licensure departments to set standards. Some standards are set by state legislatures. Further, some occupational standards and regulations also follow those set by federal agencies, such as the Occupational Health and Safety Administration.

US Department of Labor, Apprenticeship Oversight. The US Department of Labor's (DOL) Office of Apprenticeships provides regulatory oversight of apprenticeship programs through DOL's recognition of a state apprenticeship agency or through the federal registered apprenticeship program, which is evaluated using DOL standards.

Professional Associations. Industry and occupational associations often actively influence state licensure departments and the standards they set. Through their efforts to influence regulations and legislation that set professional standards, industry associations can have a strong voice in the establishment of state licensure standards. They also can set norms within their industry to guide how organizations use NDCs in their hiring practices. Finally, industry associations may offer NDCs through certifications as well as influence the quality of NDCs.

QUALITY ASSURANCE BODIES

Quality assurance bodies influence the NDC marketplace by setting professional norms. There are several such non-governmental, third-party organizations that set standards for certification and certificate programs and ensure those standards are met. These include the American National Standards Institute's (ANSI) subsidiary, the National Accreditation Board; the Institute for Credentialing Excellence; and the National Commission for Certifying Agencies.

ANSI National Accreditation Board (ANAB). Under the ANSI umbrella is the ANSI National Accreditation Board (ANAB). In addition to providing accreditation services to a diverse range of business-related services both in the US and abroad, ANAB provides training and education to public- and private-sector organizations.³⁶ ANAB's accreditations and certifications are widely recognized for their specific requirements and assessment processes. They use internationally accepted principles to establish professional and industry standards, and they use related systems for the assessment of those

³⁵ DiMaggio & Powell, 1983.

³⁶ ANAB. (n.d.). *ANSI National Accreditation Board*. Retrieved from <https://anab.ansi.org/>

standards.³⁷ ANSI principles include transparency, impartiality, effectiveness, relevance, consensus, performance-based, coherence, due process, and technical assistance.³⁸

Institute for Credentialing Excellence (ICE). As a membership organization, ICE does not itself accredit programs, but it plays a major role in establishing standards for industry accreditations. ICE seeks to “lead through accreditation, advocacy, education, innovation, research, and standards.”³⁹ ICE engages in a variety of educational and networking activities that serve employers, the professions/occupations, and the public. They provide a clearinghouse of information for the field of industry accreditations.⁴⁰

National Commission for Certifying Agencies (NCCA). NCCA was originally established as the National Commission for Health Certifying Agencies (NCHCA) to develop standards to accredit health-care training programs. In 1989, NCHCA became NCCA and expanded its scope to non-health-related professions and industries.⁴¹ Accreditation by the NCCA means that an educational or training program has received third-party validation and meets recognized national or international industry standards in the “development, implementation, and maintenance of certification programs.”⁴² In the case of health-care training programs, NCCA accreditation indicates that a program has met the underlying goal of ensuring public safety, health, and welfare.⁴³ As of 2018, NCCA has accredited 316 programs, 128 organizations, and 26 industry sectors.

Several standards guiding the work of these organizations have been developed by a variety of international standards-setting organizations. These include:

Standards for assessment-based certificates

ANSI/ASTM 2659. ANSI, along with the American Society for Testing and Materials (ASTM), created ANSI/ASTM 2659 to provide a standard for assessment-based certificates programs.

ICE 1100. ICE, in conjunction with NCCA, developed the ICE 1100 standard for assessment-based certificate programs in 2019. This standard has been approved by ANSI.

³⁷ Ibid.; ANSI. (2010). *Overview of the U.S. standardization system*. (3rd ed.). American National Standards Institute. Retrieved from https://share.ansi.org/shared%20documents/News%20and%20Publications/Brochures/U.S.StandardsSystemOverview_Third_Edition.pdf

³⁸ ANSI. (n.d.) *U.S. standards systems: U.S. standards strategy*. American National Standards Institute, 7. Retrieved from https://www.standardsportal.org/usa_en/standards_system/standards_strategy.aspx

³⁹ <https://www.credentialingexcellence.org/About/Mission-and-Vision>

⁴⁰ Ibid.

⁴¹ Institute for Credentialing Excellence. *Accreditation*. Retrieved from <https://www.credentialingexcellence.org/Accreditation/Earn-Accreditation/NCCA>

⁴² Ibid.

⁴³ Ibid.

Standards for certifications

ISO/IEC 17024. The International Standards Organization (ISO) and the International Electrotechnical Commission (IEC) created the ISO/IEC 17024 standards to be used by accrediting organizations for their certification processes. ISO/IEC 17024 specifies a set of “principles and requirements” for organizations to award certifications. These standards were adopted in the United States by ASTM International, a standard developing organization accredited by the American National Standard. They are also used by ANSI-ANAB and by the International Accreditation Service (IAS), which implements the standard under ICE.

Assessment-Based Certificate Accreditation Programs (ACAP). NCCA has its own standards for the accreditation of certificate programs, known as ACAPs. NCCA publishes ACAPs for organizations wishing to seek accreditation for their certificate program(s). ACAPs identify the “essential requirements” for programs that award certificates and specify the elements of high-quality certificate programs. They are used by accrediting bodies as “a benchmark standard” when they evaluate assessment-based certificate programs.⁴⁴

General requirements for accreditation bodies

ISO/IEC 17011. This conformity assessment established by ISO/IEC provides the general requirements for accreditation bodies accrediting conformity assessment bodies. Standards for continuing education and CEUs

IACET Standards. To establish standards for continuing education requirements associated with occupational licensure and industry certification, International Accreditors for Continuing Education and Training (IACET) offers standards on the awarding of CEUs. These standards are often for noncredit activity (in educational and workplace settings) and seek to ensure they are awarded for activity that pertains to the successful completion of learning related to maintaining currency in an occupation.⁴⁵

HIGHER EDUCATION ACCREDITORS

Accreditation is a peer-review process provided by external organizations to ensure the quality and value of education provided by elementary, secondary, and postsecondary educational institutions (ACCJC).⁴⁶ Accreditation includes a systematic review of quality by impartial third-party reviewers. An institution

⁴⁴Institute for Credentialing Excellence. (2021). *Community. Competence. Credibility: Promoting best practices for the credentialing community*. (Annual Report 2019–2020). Washington, DC: Author, 8.

⁴⁵IACET. (n.d.) *About IACET*. International Accreditors for Continuing Education and Training. Retrieved from: <https://www.iacet.org/>

⁴⁶ACCJC. (n.d.). About ACCJC. Accrediting Commission for Community and Junior Colleges. <https://accjc.org/about/#>

may receive overall accreditation, but one or more of its schools or programs of study may receive additional accreditations through separate professional accrediting organizations, e.g., the Council of Social Work Education, which can the institution's affirm social work degree programs meet the standards for that occupation. Given accreditation is a requirement for federal Title IV student aid programs, most educational and training institutions receive an institutional accreditation. However, since Title IV funding does not currently extend to most NDCs, these programs have received very little attention from higher education accreditation bodies. The most direct influence these accreditors have on NDC programs, therefore, is via their larger oversight role providing organizational-level quality assurance for institutions that both receive Title IV funding and award NDCs, such as community colleges. The following is an illustrative (but not comprehensive) list of examples of this activity by accreditors:

Council of Higher Education Accreditation (CHEA). CHEA is a national organization of accreditation bodies. In 2019, as a national leader in accreditation, CHEA launched an effort to build a quality assessment platform for digital credentials. The platform is intended to be an outcomes-based system of external review with the goal of affirming the quality of digital credentials.⁴⁷

Accrediting Commission for Community and Junior Colleges. The ACCJC provides peer-review accreditation of both degree and non-degree programs at community colleges, career and technical colleges, and junior colleges in the western states and territories of the Pacific rim. ACCJC standards stipulate that institutions must define specific non-degree pathways in which students can earn certificates, as well as establish advising mechanisms about such pathways for both potential and enrolled students. Institutions must also demonstrate that graduates of their institution's career NDC technical programs are prepared for employment and licensure.⁴⁹

Commission on Accreditation of Allied Health Education Programs (CAAHEP).⁵⁰ CAAHEP is a field-specific accrediting body in the health sciences covering 32 different professions from certificate (e.g., emergency medical technician – paramedic) and diploma levels (e.g., medical assistant) through master's programs (e.g., art therapist).⁵¹ CAAHEP uses CHEA's nationally approved standards, which emphasize the values of integrity, collaboration, accountability, and consensus.⁵² Each accredited

⁴⁷CHEA. (n.d.) *Becoming a CHEA/CIQG quality platform provider*. Council for Higher Education Accreditation. Retrieved from <https://www.chea.org/becoming-cheaciqg-quality-platform-provider>

⁴⁸Western Association of Schools and Colleges (ACCJC). (2014). *Accreditation standards*, 8. Retrieved from https://accjc.org/wp-content/uploads/Accreditation-Standards_-_Adopted-June-2014.pdf

⁴⁹Western Association of Schools and Colleges (ACCJC), 2014, 7.

⁵⁰See CHEA. (n.d.) *Programmatic accrediting organizations*. Council for Higher Education Accreditation. Retrieved from <https://www.chea.org/programmatic-accrediting-organizations#allied-health-education>

⁵¹CAAHEP. (n.d.). *What is CAAHEP?* Retrieved from <https://www.caahep.org/Home.aspx>

⁵²CAAHEP. (n.d.). *About CAAHEP*. Retrieved from <https://www.caahep.org/About-CAAHEP.aspx>

profession also has its own set of standards and guidelines reflecting the required skills sets and knowledge for specific occupations.⁵³

EFMD Quality Improvement System (EQUIS). EQUIS offers institutional accreditation for business and management schools. It provides a conceptual framework for credentialing across multiple components using a continuous improvement process that encompasses NDCs along with traditional degree programs.⁵⁴

Accrediting Commission of Career Schools and Colleges (ACCSC). As an accreditor for occupational, trade, and technical degree and non-degree granting schools, ACCSC's mission is "to ensure quality education that enhances student success in the workforce."⁵⁵ An ACCSC review focuses on the qualifications of program faculty and educational administrators; admissions policies and practices; student outcomes; and practices around distance education.⁵⁶

The Middle States Association Commission on Elementary and Secondary Schools (MSA-CESS). In recent years MSA-CESS has expanded its scope to accredit postsecondary, non-degree-granting institutions that offer NDCs (typically for-profit institutions). They currently oversee more than 100 such institutions. The MSA-CESS review process involves 12 established standards for quality in terms of program design⁵⁷ and requires program outcomes of 70 percent completion, license, and placement rates.⁵⁸

Former Regional Higher Education Accreditation Agencies. As a result of a change in federal accreditation regulations, a number of former regional accreditation organizations have begun to shift their scope to the national scene. These organizations include the Higher Learning Commission, Middle States Commission on Higher Education, New England Commission on Higher Education, Northwest Commission on Colleges and Universities, Southern Association of Colleges and Schools, and Western Association of Schools and Colleges. With this shift in reach, as well as broader interest in NDCs, accreditation organizations may increasingly engage in conversations and activity focused on NDC quality.

⁵³CAAHEP (n.d.). *Accreditation*. Retrieved from <https://www.caahep.org/Accreditation.aspx>

⁵⁴EQUIS. (2021). *Leading institutional accreditation system*. EFMD Global. Retrieved from <https://www.efmdglobal.org/accreditations/business-schools/equis/>

⁵⁶See the full list of ACCSC's standards at <https://www.accsc.org/Accreditation/Standards-of-Accreditation.aspx>

⁵⁷These are: philosophy/missions, governance/leadership, school improvement planning, finances, facilities, school climate/organization, health/safety, educational program, assessment/evidence of student learning, student services, student life/activities, and information resources/technology. Retrieved from <https://www.msa-cess.org/default.aspx?RelID=1076121692>

⁵⁸Mort, G. R. (2020, February 17). Career and technical education keeps America's economy strong. *The Philadelphia Inquirer*. Retrieved from <https://www.inquirer.com/opinion/commentary/pennsylvania-career-technical-education-standards-20200217.html>

OTHER QUALITY ASSURANCE ENTITIES

Some additional organizations are involved in monitoring the quality of educational and training programs including those that award NDCs.

American Council of Education (ACE). ACE evaluates the quality of training and educational programs through a variety of means. One of the most significant is their work in connecting out-of-school learning gained as part of military training and programs to degree programs through assessments called “Learning Evaluations.” ACE also evaluates and assesses academic and industry training programs and conducts reviews of academic and occupational exams. In addition, they have created mechanisms to document individual learners’ skills and competencies. Through their web-based National Guide,⁵⁹ ACE has developed a recognized process for individuals to translate their skills into Prior Learning Credits.

Quality Matters (QM). QM’s mission is to set high quality standards for online courses.⁶⁰ Their QM Rubrics and Standards, which are tailored to specific levels of study, examine individual curriculum elements and consider their alignment with one another to ensure all elements work together to achieve student success.⁶¹ Courses that meet at least 85 percent of the essential QM standards receive a QM Certification for quality design.⁶²

QA Commons. QA Commons is a quality assurance effort designed to determine a program’s capacity to prepare its graduates for employment across all disciplines of study. QA Commons identified eight Essential Employability Qualities (EEQ),⁶³ then translated them into an EEQ Certification, which they developed for use with both degree and non-degree programs. While EEQ certification has most often been used with associate or bachelor’s degree programs, it also has been used with NDCs, including two medical assisting programs.⁶⁴

⁵⁹ACE. (n.d.). *The ACE National Guide*. The American Council on Education. Retrieved from <https://www.acenet.edu/National-Guide/Pages/default.aspx>

⁶⁰Quality Matters. (n.d.). *Why quality matters?* Retrieved from <https://www.qualitymatters.org/why-quality-matters/about-qm>

⁶¹Quality Matters. (n.d.). *Higher ed course design rubric*. Retrieved from <https://www.qualitymatters.org/qa-resources/rubric-standards/higher-ed-rubric>

⁶²Ibid.

⁶³Quality Assurance Commons. (n.d.) *Our mission*. Retrieved from <https://theqacommons.org/workforce/#our-mission>

⁶⁴See Quality Assurance Commons. (2020, April 8). *Gateway community & technical college advanced manufacturing (FAME)*. Retrieved from <https://theqacommons.org/wp-content/uploads/2020/05/Executive-Summary-Gateway-FAME-April-2020.pdf>

INDIVIDUAL EMPLOYERS AND COLLEGES

The recognition and use of NDCs by organizations are essential to their translation into outcomes of value. For example, the greater the extent to which employers use an NDC in their hiring choices and pay scales, the greater the value-outcome for that NDC, and the greater its value to the NDC holder. Likewise, a given NDC may also possess value to the extent that colleges recognize it represents valuable learning and then offers the holder an opportunity to engage in prior learning assessment to credit the holder's knowledge and skills. This enables the holder to gain postsecondary academic credits toward a degree program.

Observing how, where, and when NDCs are adopted provides important information on their patterns of diffusion and their potential value in the marketplace. As organizations notice changing or new practices in their field, they may adopt the same practices. Changes in organizational use of NDCs may increase the availability of or improve information about an NDC, resulting in greater transparency. The more organizations see their counterparts gaining value from the use of NDCs, the more value they gain. And like a stone thrown in a lake, the ripple effect increases use and use increases outcomes of value.

SUMMARY

The above review illustrates the many organizations that influence quality in NDCs and the organizations that award them. Table 2 summarizes these organizations and their effect on NDC quality. Educational institutions have one set of organizations influencing the quality of their offerings, including accreditors and government, whereas professional and industry associations are subject to a different set of influences, including a variety of quality assurance organizations. While these distinctions are not rigid, they do indicate how different segments of the NDC marketplace are shaped by different influences. That recognition can lead to greater sharing of ideas and processes across these segments, helping to strengthen all segments and move toward a more coherent model of NDC quality with more shared standards.

While international activities around NDCs are beyond the scope of this review, it is important to note that in Europe there are numerous efforts to standardize credentialing systems and ensure quality, such as the Bologna Process. These efforts provide a broad framework in which NDCs can become standardized and recognized. Efforts are under way in the European context to apply these existing standards from traditional degrees to microcredentials.⁶⁵

⁶⁵ Soenen, M., Finocchietti, C., and Korhonen, J. (2021, July 24). Micro-credentials can stimulate diversity of provision. *Diversity World News*. Retrieved from <https://www.universityworldnews.com/post.php?story=20210720134017276>

TABLE 2: SUMMARY OF ORGANIZATIONS AND THEIR INFLUENCE ON QUALITY

ORGANIZATIONS INFLUENCING QUALITY	TYPES OF ORGANIZATION INFLUENCED							TYPE OF NDC INFLUENCED				
	EDUCATIONAL INST.	PRIVATE PROVIDERS	PRIVATE COMPANIES	UNIONS	PROF./IND. ASSOC.	STATE GOVERNMENTS	CERTIFICATES	CERTIFICATIONS	LICENSURE	APPRENTICESHIPS	BADGES/ MICRO-CREDENTIALS	
Organizations Promoting Transparency												
Credential Engine	X	X	X	X	X	X	X	X	X	X	X	
Eligible Training Provider Lists	X	X	X	X	X	X	X	X	X	X	X	
Badging standards and platforms	X	X	X								X	
Government Entities via Regulation												
State Departments of Education	X	X	X				X	X	X	X	X	
State Departments of Labor, WIOA	X	X	X				X	X	X	X	X	
Proprietary school oversight agencies			X				X				X	
State licensing departments		X							X			
US Department of Labor, Apprenticeship				X		X				X		
Professional Associations						X			X			
Quality Assurance Organizations												
ANSI National Accreditation Board	X	X			X			X				
Institute for Credentialing Excellence &	X	X			X			X				
Nat. Commission for Certifying Agencies	X	X			X			X				
Higher Education Accreditors												
Higher education accreditors	X						X				X	
Other third-party entities	X						X				X	
Other Quality Assurance Entities and Standards												
American Council of Education	X	X	X	X	X		X				X	
Quality Matters	X						X				X	
QA Commons	X						X				X	

IMPLICATIONS FOR AN NDC OVERSIGHT SYSTEM

The challenge in this complex and varied NDC landscape is to develop a strategy that will bring together widely dispersed and fragmented sets of organizations and influences to establish more uniform standards to assess NDC quality. This review has shown that many organizations affect quality, and do so via different forms of influence, affecting credential design, the process of awarding them, and their use in the marketplace. In this context, it is important to recognize that each organization, process, or influence varies in its reach and in the intensity of its impact on the use and value of NDCs.

As NDCs grow in popularity among students, employers, and policymakers, the need for a more coherent system to promote quality is imperative. Whatever this system entails, it would be wise to build it so that it takes advantage of the efforts and dynamics that already exist within the credential marketplace. This concluding section discusses key considerations and points to some implications for building a robust system to ensure NDC quality.

Initiatives that promote transparency offer important elements to the discussion around how to influence quality. Compiling information on NDCs (e.g., their design and outcomes) and making that information available is a foundational element in the self-regulated marketplace. This is because well-informed consumers help shape the credentialing market by (rationally) choosing to attend programs with the most successful outcomes while at the same time employers seek job candidates holding certain NDCs rather than others. Many questions exist about the actual impact and use of transparency systems and the optimal way to design them. Developing standards for what kind of information is included in such systems can have important implications. Even seemingly straightforward information – such as earning outcomes, for example – can be presented in different ways with potentially different implications.⁶⁶

It is therefore essential that conversations occur among organizations promoting transparency about what information to present and how to present it. Such conversations must also be guided by the needs of the end user of the information – that is, the individuals, employers, and policymakers involved in making decisions about NDCs. Further, the results of any efforts must be applicable to a wide range of organizations and NDCs, if they are to be taken to scale. The limitations are in the use – whether the information is relevant, timely, and becomes widely known and actually used. If the resulting system is able to anticipate what stakeholders need in terms of information, and how they will use that information, there is good reason to believe in its buy-in potential.

⁶⁶Ruder, A. I., & Van Noy, M. (2017). Knowledge of earnings risk and major choice: Evidence from an information experiment. *Economics of Education Review*, 57(1), 80–90. <https://doi.org/10.1016/j.econedurev.2017.02.001>

Funding opportunities provide an important motivator for the promotion and maintenance of NDC quality. Government entities that fund noncredit programming, including NDC training programs, can therefore exert a strong influence on quality standards and processes. For example, states where funding for noncredit education is available via the community college system typically have established standards and processes for their NDC's programs of study. Such standards often influence both the design and the outcomes of those NDCs. A partnership between government entities and community college systems therefore presents a potential framework upon which to build a more robust system to promote quality. If short-term-program Pell Grant funding were to become available, these state and college partnerships could offer an important locus, if not a point of leverage, from which to build out larger systems to promote quality.

At the same time, the ability of government entities to promote quality must be done thoughtfully. For example, ETPL implementation varies widely across states in terms of the information included and the organizations that choose to make their programs eligible for the list. Essentially, being part of the funding system requires that the organizations participate in its requirement to report outcomes, but not all NDC providers choose to disclose that information. They may choose instead to operate outside of the reach of governmental regulation and funding systems. To put it more broadly, government entities do not always have the ability to apply their influence on every type of organization involved with NDCs.

Quality assurance (QA) organizations can play a role in the oversight of NDCs that typically falls outside of regulation, as well as offer robust standards for those under regulation. They can have a strong influence on organizations and NDCs that choose to adopt their standards and processes. Given their voluntary nature, however, their influence is not as strong as regulatory agencies. Nevertheless, the adoption of a set of established QA standards can help build legitimacy for organizations and the NDCs they award. To date, the adoption of QA standards is far more common among private training providers and industry associations than among traditional educational institutions. Still, these organizations have the potential to expand the adoption of their standards across sectors and to work in tandem with state entities that promote quality. Together these systems may be able to yield a more robust system.

Higher education accreditation organizations have had little direct involvement with – and therefore little direct influence on – NDC quality. While some recent efforts from accreditors demonstrate the potential for influence in this sphere via their norm-setting role, a wider involvement in NDC quality efforts could be limited by the fact that the common standards used in traditional accreditation may not apply well to NDCs. However, some of the emergent systems more directly targeted at NDCs among existing accreditors offer promising ways to leverage the expertise and wide reach of the current accreditation

system. Accreditors and other stakeholders should continue these conversations to develop and extend these emergent ideas and systems to ensure quality while also retaining the distinctive features of NDCs.

Other emergent quality assurance entities and systems address specific needs within the credential marketplace. These point to places where the current system is lacking, such as with credentials based in online learning. New systems can be developed to fill these gaps.

CONCLUSION

A critical opportunity exists to develop a coherent and comprehensive system to promote NDC quality, to build something new that accounts for the needs of the rapidly expanding NDC marketplace. While there are many strengths that could be further developed in the existing organizations and systems that influence NDC quality, the continuation of a segmented system challenges the real possibility of a robust NDC marketplace.

Several states are currently engaged in discussions about how to create systems to promote quality. These efforts would be well placed to examine the work of other entities that have established such systems. Quality assurance entities have processes that could be further promoted and adopted among organizations that offer similar NDCs. These are just some ideas for projects that can be developed directly out of the existing landscape.

Ultimately, however, more effective and legitimized systems will need to be created. These are likely best situated at the state level, informed by and aligned with these many other efforts. Multiple types of influences are important to use in these efforts (e.g., transparency, regulation, and norm setting). They all have a role to play and together will form a more robust and coherent system to make sure that NDCs deliver on their promises to individuals, employers, and the public.

The NDC marketplace needs ongoing attention, both in terms of research and practice. Further research can help examine the actual efficacy of the quality assurance entities currently in place and better assess the potential need for new ones. Finally, further discussions are needed among relevant stakeholders to assess the strengths and weaknesses of various forms of quality assurance in the NDC marketplace and how they can be better aligned.

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APPENDIX A

Table A1: Definitions of Non-Degree Credentials

TYPE	DEFINITION	LOCATION OF LEARNING	AWARDED BY	CRITERIA FOR AWARD
SUB-BACCALAUREATE FOR-CREDIT CERTIFICATES	Credential awarded by an educational institution for completion of a sub-baccalaureate for-credit educational program, usually less than one year in length.	School	Colleges	Complete program
NONCREDIT CERTIFICATES	Credential awarded by an institution for completion of a noncredit educational program; this includes courses or programs offered by educational institutions and online/MOOC providers, as well as military and employer-based training with clearly articulated learning outcomes. ⁶⁷	School, work, military	Colleges, employers, military	Complete program
INDUSTRY CERTIFICATIONS	Credential awarded by an industry body or governmental agency for the demonstration of skills typically via examination based on industry or occupational standards.	School, work, individually	Industry groups, government	Pass exam, ongoing continuing education, or recertification
OCCUPATIONAL OR PROFESSIONAL LICENSURE	Credential awarded by a governmental agency for the demonstration of skills in a specific occupation and sometimes also completion of an educational program; attainment may be required to work in an occupation.	School, individually	Government, occupational groups	Pass exam, complete training (sometimes), ongoing continuing education, or recertification
APPRENTICESHIPS	Credential awarded after completion of structured educational and workplace program based on industry and occupational standards.	School, work	Unions, colleges, industry groups	Complete on-the-job training or pass exam
BADGES, MICROCREDENTIALS	Credential awarded for completion of a short program of study or the demonstration of a targeted set of skills; these are newly emerging.	School, work, individually	Colleges	Complete training or pass exam

⁶⁷ Military training grants access to particular occupational positions within the military based on the completion of both classroom-based and work-based learning; the levels of the positions are defined by military occupational specialty codes, and trainings are specific to each branch of the military.



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