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Fixing the Credentialing Chaos

A National Tool and State Application

Ken Sauer
Stephen Crawford

There is an important race taking place in the world of workforce credentials. On one side are the growing number and variety of unique credentials and the attendant confusion about what they mean, how they relate to each other, and what their value is. On the other side are new tools for creating and communicating comparable information about credentials of all kinds, from certificates and degrees to certifications, licenses, apprenticeships, and badges. At present, the forces of proliferation and chaos are winning, but smart-technology platforms are poised to overtake them. Much depends, however, on whether key stakeholders can overcome classic collective action obstacles and adopt these promising solutions to the credentialing chaos.

This chapter describes one suite of such tools and one state's effort to promote their adoption. It begins by clarifying the nature of the problem, explaining the implications for a solution, and describing a major initiative to build an online platform accordingly. It goes on to discuss in some detail the largely successful efforts of the state of Indiana to promote the population and use of this platform, especially in the health-care sector and in helping veterans transition to civilian careers. It concludes with a brief account of lessons learned and recommendations for leaders in other states who may wish to pursue a similar strategy for improving labor markets, closing skill gaps, and increasing economic growth and social mobility.¹

THE PROBLEM: LACK OF TRANSPARENCY, TRUST, AND COMPARABILITY

Credentials perform key functions in labor markets. Employers rely on them as a convenient though flawed proxy for the talent, knowledge, and skills of job seekers. Students invest considerable sums to obtain them in the hope they will open doors to desirable jobs and careers. Educational institutions examine their rivals' credentialing programs before making decisions about launching new programs or changing existing ones. Lenders, career counselors, and others use credentials as indicators of value.

Unfortunately, it is extremely difficult for these and other participants in the credentialing marketplace to know or find out exactly what various credentials signify. For students, key uncertainties include how much they will spend in time and money to obtain the credential, what competencies they will have when they graduate, what employment and earnings outcomes to expect, and what doors to further education the credential unlocks. Employers face many of the same uncertainties but are especially concerned about how industry-informed the curriculum is, how relevant and rigorous the assessments are, and exactly what the credential holder knows and can do. Students, employers, and other stakeholders wonder about the meaning of the wide variety of accreditations, endorsements, and approvals that programs claim.

There are several reasons for such confusion. The credentialing marketplace is complex and highly fragmented, with different parts of it using different technical languages and quality criteria to describe and evaluate credentials. The recent increase in the number and kinds of credentials—they have grown to more than 300,000 in the United States alone and now include micromasters and coding camp certificates—is exacerbating the problem.² Moreover, there is a growing tendency for students to pursue combinations of educational credentials and industry certifications (or even apprenticeships), often through the same program, thus making evaluations of the value of specific components more difficult.

Complicating matters is the consideration that a credential is not so much a product or service as an attestation that its holders have a specific package of knowledge and skills—or at least have completed

a program or test designed to produce or select for them. Yet credentials with the same name—a bachelor of science degree in mechanical engineering, for instance, or an associate of arts degree in criminal justice—often reflect quite different bundles of knowledge and skills, depending on the provider, while those with different names—master of public administration, government administration, or public management—reflect similar ones.

Even when credentialing organizations do provide information about the quality and value of their credentials, they do so in unstandardized ways, which makes comparison difficult at best. And the meaning of claims a credential may make about ensuring quality is often unclear, because there are hundreds of organizations that accredit, endorse, approve, or otherwise recommend credentialing programs, and it is difficult for interested parties to evaluate which of those organizations have higher standards and better methods for assessing conformity with these higher standards.

In short, the credentialing marketplace is characterized by a serious lack of transparency, trustworthiness, and comparability. This is not surprising in a sector as complex and decentralized as that of education, training, and skill assessment. But in a knowledge-based economy, the result is misguided investments, regretted hiring decisions, and serious skills gaps, which in turn weaken workforce quality, economic growth, and social mobility.

THE SOLUTION: A COMMON LANGUAGE AND A SEARCHABLE REGISTRY

To address this market failure, in 2013 concerned stakeholders and experts launched the Credential Transparency Initiative (CTI).³ The purpose of CTI was to develop and test three things: 1) common terms for describing all kinds of credentials; 2) a web-based registry, modeled on the Learning Registry, for aggregating and sharing the resulting comparable information; and 3) a prototype application that would allow customized searching of the registry. Three years of pilots and stakeholder feedback led to a decision to take the system up to scale, and in 2016, CTI morphed into an independent nonprofit, Credential

Engine, with its own board, staff, and advisory committees. Credential Engine now maintains the key components of the system: the Credential Transparency Description Language, the Credential Registry, and Credential Finder.⁴

The Credential Transparency Description Language is a metadata infrastructure that conforms to the World Wide Web Consortium's specifications and its vision for open Linked Data. The Credential Registry is an open-source, web 3.0–based database that captures, connects, and makes searchable current information about credentials of all kinds, the organizations that award those credentials, and the quality assurance bodies that endorse, approve, accredit, or otherwise recommend them. That information is published voluntarily by participating credentialing and quality assurance organizations.⁵

Credential Finder is Credential Engine's prototype search app. It enables employers, job seekers, students, career counselors, and others (e.g., program operators, policymakers, researchers) to find credentials of interest and compare them along many dimensions—from competencies, assessments, and quality assurances to costs, pathways, and labor-market outcomes. Because it is “open source,” other organizations—from commercial vendors to national associations—can develop their own competing or more specialized apps, and some are already doing so.

This system is well designed to provide the transparency, trust, and comparability that the credentialing marketplace desperately needs. However, realizing its potential depends on the registry reaching a critical mass of credentials, and not all credentialing organizations are prepared to provide them. Some imagine that posting the required information takes more time than it does. Some worry about how they will look when compared with others. Nevertheless, a rapidly growing number of credentialing programs is seizing the opportunity to be more visible and “findable” on the Internet, and the registry now contains over 2,200 credentials. Yet, with hundreds of thousands of credentials in the United States alone, there remains a long way to go.

Fortunately, state governments and education commissions are stepping up to this challenge by undertaking to achieve critical mass in their states, industry by industry. Some have signed agreements with Credential Engine, and others are preparing to do so. The first and most advanced of these states is Indiana. There, the Indiana Commission

for Higher Education, in collaboration with other state agencies and the governor's office, has launched several initiatives to achieve critical mass within the health care industry. The remainder of this chapter explains these initiatives and the remarkable progress they have made.

INDIANA EMBARKS ON A SCALE-UP OF CREDENTIAL ENGINE

From its first exposure to Credential Engine, the Indiana Commission for Higher Education (“the commission,” or ICHE) viewed it as a promising means of better serving the state's residents and workforce needs. This goal could be accomplished by pulling together information, in unprecedented scope and detail, on Indiana credentials of all types, not just college certificates and degree programs, and connecting this information to a wealth of other information on other topics ranging from who can vouch for the quality of these credentials to career pathways and workforce needs.

In March 2017, ICHE, with the support of a grant,⁶ began the initial phase of the first, and until recently, the only, statewide scale-up of Credential Engine. Ivy Tech Community College had participated in an early pilot of Credential Engine the previous year by uploading two of its certificate programs to help demonstrate proof of concept. The commission saw value in widespread adoption of this innovative tool. For reasons explained below, the initial efforts focused on health care and the military, with other industries and stakeholders brought into the process in the later months of the effort.

Health care was selected because it is one of Indiana's largest employers. Nine of the top 50 occupations in the state are connected to health care. Moreover, it has been the focus of state government attention. Following Indiana's participation in a Policy Academy sponsored by the National Governors Association, Governor Mike Pence established a three-year Governor's Health Workforce Council in February 2016, which Governor Holcomb has continued. In addition to mobilizing public-sector resources, including the Bowen Center for Health Workforce Research and Policy in the Indiana University School of Medicine, the Council engaged leaders from relevant state agencies,

health care employers, professional and industry associations, and non-governmental organizations.

Another important focus of the scale-up has been how military training might be represented on the registry and how veterans might have their training and experience translated into advance standing in certificate and degree programs in Indiana colleges and universities.⁷

Once the scale-up was well underway with respect to health-care and military training, the commission turned to populating the registry with information about non-health credentials, credential providers, and quality assurance entities. In expanding the scale-up beyond health care, the commission sought to focus on a variety of applications that might serve to demonstrate the value and potential of Credential Engine. What follows is a summary of Indiana's progress thus far, organized around 10 "use cases" that illustrate the broad reach of the Credential Engine system.

INDIANA'S INITIAL EMPHASIS ON HEALTH CARE

The work on health care began with entering the more than 350 certificate and degree programs offered by public two-year and four-year institutions. This included certificate programs of any length, even if they required as few as five semester credit hours, as well as all associate-to-doctoral degree programs. Using the commission's Academic Program Inventory, the Indiana Commission on Higher Education's Office of Academic Affairs entered all of the programs on behalf of the public institutions, and it supplemented the basic information about the credential by copying core narratives from the institution's own website.

This approach was taken because the commission did not want its first interaction with an educational institution to be a discussion about the potential benefits of Credential Engine or the mechanics of creating an account and using interactive screens to enter information onto the Credential Registry. Rather, it wanted the first interaction to show how effective the registry could be to a user, such as a prospective student, in seamlessly displaying and connecting a lot of powerful information

about the institution's programs. This approach enabled us to immediately engage senior administrative and program leaders about the value of listing information on the registry.

Working in partnership with the Independent Colleges of Indiana (ICI), the commission also contacted two private universities that appeared interested in making use of the registry. By the end of 2017, the University of St. Francis had loaded *all* of its programs onto the registry, not just its health programs, and Indiana Wesleyan University was moving toward that same goal.

Another important component of ICHE's strategy was to work with the leadership of the Indiana Professional Licensing Agency, which licenses 107 health-care professions. This enabled us to gather information about specific licensure boards and to ensure that information about those boards was reviewed by board staff for accuracy.

While it was important to demonstrate the breadth of Indiana's scale-up by entering all of the health-care programs offered by public institutions, it was also important to demonstrate depth. This was accomplished by focusing in greater detail on the nursing profession, behavioral health and human services professionals, and selected allied health fields.

Nursing

Nursing is by far the largest health profession, with some four times as many registered nurses as doctors at the national level—five times as many if you include licensed practical nurses (Penn LDI 2015). This critical health-care profession undergoes frequent cycles of being in significantly short supply. It is also an occupation with career pathways to higher positions. Consequently, many potential students seek information about nursing programs, and the commission gave special attention to getting nursing credentials onto the Credential Registry.

Typical of state boards of nursing, the Indiana State Board of Nursing (ISBN) is both a credential provider (i.e., it issues a license or credential to an individual) and a quality assurance entity (in that it approves nursing education programs that would qualify a graduate of such a program to sit for a nursing licensing examination). Thus, for every ISBN-approved nursing program in the registry, a link was made

between the ISBN and the description of the licensing criteria, procedures, and fees for becoming licensed as an LPN or an RN. Since quality assurance is also provided by one of the two national, specialized accrediting bodies in nursing (the Commission on Collegiate Nursing Education [CCNE] and the Accreditation Commission for Education in Nursing [ACEN]), links were established between these accrediting bodies and the nursing programs that were accredited by one or the other of these accrediting bodies.

The nursing profession provides economic and social mobility for individuals through a well-established career ladder. For this reason, connections were made in the registry among all of the undergraduate Indiana nursing programs. One set of connections demonstrates how a graduate of an 18-month certificate program qualifying someone to become an LPN could advance his or her career by transferring credits and achieving advance standing in an Associate of Science in Nursing (ASN) program, or even a Bachelor of Science in Nursing (BSN) program, preparing that person to become licensed as an RN. Another set shows how a graduate of an ASN program could transfer and apply his or her credits toward a BSN program.

RNs can further their careers even more by pursuing a master's or doctoral degree and becoming an advanced practice registered nurse (APRN) or, more specifically, a nurse practitioner (NP), a clinical nurse specialist (CNS), a certified nurse midwife, or a certified RN anesthetist. Becoming an NP or CNS also entails demonstrating expertise in a specialty area that is signified by the issuance of a professional certification through the American Nurses Credentialing Center (ANCC). There are about a dozen NP specializations, including acute care NP, family NP, gerontological NP, and emergency NP. Similarly, there are almost as many CNS certifications, including adult health CNS, home health CNS, and public/community health CNS. The Indiana scale-up of Credential Engine has not yet developed links between such graduate nursing programs as these APRN specializations, but it soon will.

Behavioral Health and Human Services

Like many other states, Indiana is suffering from a public health crisis related to having not enough resources to treat mental health and addiction problems. The Indiana state scale-up of Credential Engine

seemed a good way to address workforce needs in this important area. The Indiana Behavioral Health and Human Services Licensing Board licenses social workers, marriage and family therapists, mental health counselors, addiction counselors, and “associates” of these various professionals. Credential Engine enabled and motivated commission staff to link the related educational programs with the licenses for which they were preparing graduates. Previously, it was possible to draw such connections, but no one had; it took a catalyst like Credential Engine and its platform for storing and retrieving information.

Focusing on mental health and addictions also created an opportunity to better align programmatic preparation with workforce needs. The Indiana scale-up fostered new connections with at least one important group of employers, the Indiana Council of Community Mental Health Centers, whose 25 members employ 8,900 individuals statewide, and led to a discussion of competencies that were missing in new graduates of programs from which these centers often hired. For example, center leaders noted that many new graduates were not well prepared to write collaborative narratives, which document the services provided to a client by a team of health-care providers, and which are needed for a center to be reimbursed for those services. This usually resulted in the inadequate documentation being returned to the center for correction, thus delaying reimbursement, or in the center diverting scarce resources, in the form of an experienced individual’s time, to provide on-the-job training for new hires.

Fortuitous circumstances presented an opportunity to address this misalignment of competencies in at least one concrete case. At the time of the discussions with the Indiana Council, one of the public universities proposed a master’s degree in mental health counseling, which ICHE must approve. In reviewing the proposal, the feedback from the council regarding the inability of new graduates to draft appropriate documentation needed for reimbursement was articulated, with the result that the program director incorporated a seminar on this topic into the curriculum. As a result of these discussions, for which Credential Engine was a catalyst, ICHE and the Indiana Council of Community Mental Health Centers will be hosting a meeting for all center directors/HR directors and all directors of relevant university programs to come together to improve the alignment of the competencies that programs produce with those that the centers need.

Allied Health and Military Training

Allied health workers constitute an important, though diversified, part of the health-care industry. In contrast to nursing, social work, mental health counseling, and other fields discussed thus far, there is more variation across the many allied health fields with respect to level of educational preparation or training, who provides the credential, licensure, certification, and accreditation. In addition, allied health fields vary widely regarding the nature of their services, their level of specialization, the number of individuals employed in those positions, and their visibility within the health-care industry. For all these reasons, students with an interest in allied health and other stakeholders stood to benefit greatly from the readily accessible wealth of information that the Credential Registry could provide.

At the December 2017 Indiana rollout of Credential Engine, pharmacy technology, which is offered by both of Indiana's two-year public institutions, Ivy Tech Community College and Vincennes University (VU), was selected as the field to illustrate how allied health could be represented in the registry. Since it is a licensed field, the registry contains connections between the Ivy Tech and VU associate degree programs and the Indiana Board of Pharmacy, housed within the Indiana Professional Licensing Agency, through which one becomes a licensed pharmacy technician. Individuals in this field can also earn the Pharmacy Technician Certification (CPhT) by passing the Exam for the Certification of Pharmacy Technicians (ExCPT exam) given by the National Healthcareer Association or the Pharmacy Technician Certification Exam (PTCE) developed by the Pharmacy Technician Certification Board.

In addition to its importance in the health-care industry, allied health was selected as an area of focus because of the opportunity it represented to illustrate how military training and experience can translate into credits and advanced standing in degree programs, should a veteran prepared in this area wish to follow a career path in allied health. To that end, ICHE worked in partnership with Solutions for Information Design (SOLID)⁸ and the leadership of the Medical Education and Training Campus (METC) at Joint Base San Antonio, Fort Sam Houston, Texas, which is where all service members who prepare for a Military Occupational Specialty (MOS) related to allied health do their training.

The Indiana statewide scale-up of Credential Engine provided an opportunity for SOLID and METC to collaborate in populating the Credential Registry with information about all 105 training programs offered at METC, which prepare service members for allied-health-related MOSs. In a number of instances, two or more branches of the armed forces consolidated their training curricula into a single program, although each branch may vary the curriculum in some way, such as the total number of hours of training required. For example, service members preparing to be pharmacy technicians will need to complete 640 hours if they are in the Air Force but 836 hours if they're in the Army and 908 hours if they're in the Navy (U.S. Department of Defense 2017, p. 10).

Once the METC programs were entered into the registry, connections could be made between these programs and degree programs in the civilian sector, indicating the number of credit hours that pharmacy technicians at a particular rank in one of the service branches could expect to be awarded should they enroll in that college or university program.

DUAL CREDIT

Opportunities for high school students to earn college credit—called dual credit or dual enrollment—have become increasingly popular as a way to increase the college-going rate, shorten the time to complete a degree, reduce tuition and other college expenses, and improve graduation rates. These effects tend to be more pronounced for underrepresented groups, including minority students.

Indiana has a very large and successful dual credit program, with some 55 percent of all 2015 high school graduates earning at least some dual credit (Indiana Commission for Higher Education 2017). About 70 percent of the students who took dual credit courses went directly to college, compared with 50 percent who took no College Board Advanced Placement (AP) exams or dual credit, and about 80 percent of dual credit students persisted to the sophomore year, compared to about 60 percent who took no AP exams or dual credit courses. Of the

students who took dual credit, 49 percent earned their credit by taking career and technical (CTE) courses (Indiana Commission for Higher Education 2017).

Because of the significant number of dual credit students pursuing CTE courses, the Indiana Credential Engine rollout included a use case that focused on this area. More specifically, the Area 31 Career Center, on the west side of Indianapolis, was entered into the registry, along with one of its CTE programs, pharmacy technician, which is offered in conjunction with its postsecondary partner, Vincennes University. High school students completing this program are eligible to become licensed pharmacy technicians and can earn the Pharmacy Technician Certification. By establishing proof of concept, the Area 31 Career Center paves the way for having all Indiana Career Centers entered into the registry.

APPRENTICESHIPS

Indiana was an early adopter of a model that linked union- and company-based apprenticeship training programs to certificate and associate degree completion opportunities at Ivy Tech Community College and Vincennes University. This model allows an apprentice to achieve recognition as a journeyman when he or she completes a U.S. Department of Labor–approved apprenticeship, but it also provides the individual with an opportunity to earn a postsecondary credential.

For this reason, apprenticeships were included as a use case in the Indiana scale-up of Credential Engine. More specifically, Ivy Tech populated the registry with all of its Associate of Applied Science Apprenticeship Technology programs in some 22 trades, ranging from boiler-maker and bricklayer to sheet metal worker and telecommunications technician. Vincennes University apprenticeship programs were added to the registry as well.

Besides demonstrating that one-way workplace/industry training can be represented in Credential Engine, apprenticeships provide another opportunity to incorporate military training into the registry. As a result of collaboration between the U.S. Department of Labor (DOL) and the armed forces, active duty service members in the Navy, Marine Corps, and Coast Guard can participate in apprenticeship programs that are

closely related to their MOS/rating or official duty assignment through the United Services Military Apprenticeship Program (USMAP). The U.S. Navy, for example, has more than 100 apprenticeships, including programs such as airframe mechanic, electrician, machinist, pipe fitter, and welder. In partnership with SOLID, the hope is to add as many of these apprenticeships as possible to the registry in the coming months.

Closer to home, the commission has reached out to the Indiana National Guard (INA), which also offers apprenticeship programs throughout the state. A partnership between the U.S. Departments of Labor and Veterans Affairs allows the INA to offer apprenticeship opportunities to Guard members in 17 DOL-approved programs through its Surface Maintenance Apprenticeship Program, which range from a 3,000-hour heavy truck driver program that takes about 1.5 years to complete to 8,000-hour programs in diesel mechanics, logistics engineering, and the sheet metal trade that take about four years to finish (Indiana National Guard, n.d.).

NEXT LEVEL JOBS

In 2017, Governor Eric Holcomb created the Next Level Jobs initiative as part of his Next Level Indiana agenda, which focuses on the high-priority industries and high-demand jobs driving Indiana's twenty-first-century economy forward. In conjunction with Next Level Jobs, the General Assembly approved funding for Indiana's Workforce Ready Grant program to provide free training for Hoosiers without prior college experience who wished to train for these high-demand jobs. The commission and the Indiana Department of Workforce Development (DWD) collaborated on implementing this initiative by identifying the specific jobs and the specific certificate programs at Ivy Tech Community College and Vincennes University for which training opportunities would be supported through this initiative.

Over 100 eligible certificate programs were placed on the registry to demonstrate how it could readily accommodate important new state-level initiatives. Moreover, while lists of these eligible programs were available elsewhere, placing them on the registry demonstrated how Credential Engine could add value. Being on the registry made it easy

to draw connections between these certificates and the institutions that were offering these programs, as well as the industry certifications that some of these certificate programs would prepare a graduate to earn, thereby further demonstrating competency through these industry-recognized credentials.

CAREER EXPLORATION AND ROI APPLICATIONS

The Indiana scale-up of Credential Engine explored ways that the open-source software underlying the registry could be utilized to attach applications and other sources of data to Credential Engine, thereby multiplying the value of both the core information in the registry and the companion application/data. As of this writing, integration of the two applications described below with Credential Engine has not yet been achieved, but it has been explored sufficiently to demonstrate the potential and feasibility of doing so, and the two applications remain the object of ongoing activities designed to achieve full integration.

The first application involved how a tool designed to help individuals discover their career interests and explore potential career pathways could be linked to the registry, thus providing a much richer experience to the user. More specifically, the DWD has contracted with Kuder, a career guidance firm, to make Career Explorer available to middle and high schools so students could help define their career interests and develop plans and pathways to realize those ambitions. While the present DWD contract focuses on K–12, the Kuder tool could also help college-age students and adults seeking career changes.

The second application aims to integrate return-on-investment (ROI) data that the commission and DWD have developed by merging data the commission collects on graduates from all public colleges and universities within the state with employment and earnings data collected by DWD. High-level data specific to Indiana have been generated on the earnings associated with graduates of program areas—for example, bachelor’s business programs or associate degrees in nursing, one, five, and ten years after graduation. While the data have limitations (e.g., they only track students who stayed in Indiana and exclude individuals who had their own businesses, these data provide important

information relevant to the majority of Indiana students who complete postsecondary credentials. The data can even be accessed for specific certificate or degree programs at particular institutions, although smaller programs are left out because of cell size: less than 10 graduates in a given year would create privacy concerns.

Leveraging the capabilities of these two applications with those of Credential Engine would provide a user with an unparalleled opportunity to explore his or her career interests, gain insights on ROI, and then understand what pathway in Indiana can help achieve that career goal.

DIGITAL CREDENTIALS

Indiana's final use case in its rollout of Credential Engine explored the potential for linking the state's well-established eTranscript initiative, powered by its contract with Parchment Inc., to Credential Engine. This last application illustrates how an individual's engagement with Credential Engine can move from a posture of actively navigating a vast information resource, including job postings at some point, to one of response, creating and transmitting personal, verifiable information about one's skills and competencies to an intended recipient, such as a prospective employer, via digital credentials.

The Indiana e-Transcript program began in 2005, when the commission, in collaboration with the Indiana Department of Education (IDOE), contracted with Docufide Inc., which was acquired by Parchment in 2011, to create a web-based mechanism for high school students to request their transcripts be sent to colleges and other destinations throughout the country.

Today, this mature program is based on a statewide common high school transcript, which allows high schools to send their transcripts to colleges as data files consistent with national Postsecondary Electronic Standards Council XML Schema, which describes the structure of an XML document; this, in turn, automates an important element of the admissions process and incorporates the transcript information as data within the college student information system. Indiana is now extending this program to college transcripts and contemplating a transcript supplement that could document experiences, skills, and achievements

relevant to potential job performance, which is not captured in conventional academic transcripts.

Parchment has proposed a solution whereby a digitized transcript or credential could be linked to and access other relevant data in the registry. For example, a student graduating from an Indiana institution could have his or her digitized transcript sent to an employer or another college, thereby not only verifying completion of the degree but also permitting the recipient, thanks to the linkages contained in the registry, to find out much more about the institution that conferred the degree, such as who accredits or otherwise endorses it. Similarly accessible would be information about the program from which the student graduated, including the competencies the graduate should have mastered. A transcript supplement could then document how the graduate applied the abstract statement of competencies through actual projects, workplace experiences, achievements, and so on.

LOOKING FORWARD

The 10 use cases discussed above suggest just some of Credential Engine's potential for communicating critical information about workforce credentials and thus improving the performance of labor markets and regional economies. In considering how to realize this potential, it helps to distinguish two challenges: 1) adding sufficient content to the registry and 2) promoting its actual utilization by potential users.

On the first of these, Credential Engine has made impressive progress since its launch in September 2016. As of February 2018, hundreds of "credentialing organizations" had posted information about more than 2,000 credentials on the registry. Many more were in the process of increasing that total—enough that Credential Engine anticipated 50,000 credentials by the end of 2018. Similarly, several national quality assurance bodies had added information about their quality standards and the methods for determining conformity with them. This progress is attributable to strong leadership, advisory panels representing key stakeholders (higher education, certification and licensure, employers, quality assurance bodies), and financial or in-kind support from Lumina

Foundation, the Business Roundtable, JP Morgan Chase Foundation, Microsoft, and others.

State governments are also playing an important role in populating the registry. Thanks to its early start, Indiana has more content on the registry than any other state—all certificates and degrees offered by Indiana’s public two-year institutions are now on the registry—but other states are stepping up. New Jersey began an implementation initiative at the end of 2017, other states are exploring similar efforts, and four New England states are contemplating a regional scale-up. Judging from Indiana’s success, such state initiatives look to be a particularly promising strategy for achieving a critical mass of credentials on the Credential Registry.

Indiana’s experience also offers some lessons that may help other states succeed in any Credential Engine initiative they undertake. One is that it’s important to have a “champion”—a governor, state agency, influential employer association—who understands the value and potential of Credential Engine in meeting state needs, and who can provide initial momentum. A second is that it’s desirable to achieve consensus on one or two strategic sectors on which the state effort will initially focus and to engage key stakeholders in them. A third is that it’s helpful to prepopulate the registry with several relevant credentials, so that a new stakeholder’s first encounter with the registry is with a tangible product, not an abstract vision or data entry challenge. Finally, progress will be faster if the lead agency can allocate some modest resources, chiefly in the form of staff time, to help drive awareness and adoption of the registry.

With respect to encouraging use of the registry, the state leadership team should give special attention to career counselors in general (in schools, colleges, job centers, temporary agencies, and community-based organizations that help their clients obtain needed credentials) and to employers in those sectors where the registry has amassed enough relevant credentials to make it useful to human resource directors.

Credential Engine’s tools are good news for students, businesses, and educational institutions currently struggling to navigate an increasingly complex and opaque credential system. Students can find out which credentials would serve them best and what opportunities will open up with investments in obtaining credentials. Employers can

better determine what a credential holder actually knows and can do. Education and training providers can improve current systems to tackle challenging issues like transfer value, as well as refine their existing programs in ways that strengthen their competitive position, start new ones that take into account the competition, and evaluate the efficiency of their programs. When employers start hiring more of an institution's graduates, there's good reason to expect more and more students will apply.

CONCLUSION

Achieving scale is a challenge for any new information platform like Credential Engine, but states like Indiana are showing how it can be done. Scale is additionally critical to provide stakeholders representative information on the value and effectiveness of credentials. The trick to achieving scale is to focus on attaining critical mass in selected industries, occupations, and regions, and to build from there. State agencies and education commissions can provide crucial leadership with funding, advocacy, and technical assistance. If they do, their state's students, job seekers, and employers will soon find it easier to make sense of the thousands of credentials that mark the path to their goals, and the state will see skill gaps decline, workforce quality improve, and economic growth accelerate.

Notes

1. This chapter brings up to date a story begun in this book's predecessor volume, *Transforming U.S. Workforce Development Policies for the 21st Century*. See its Chapter 7, "Creating and Communicating Critical Information about Workforce Credentials," by Stephen Crawford and Robert Sheets (2015). See also the *New America* blog (Sauer and Crawford 2017), and the many related publications under "Resources" at www.credentialengine.org.
2. See *Counting U.S. Secondary and Postsecondary Credentials, a Credential Engine Report*, April 2018. The 300,000+ figure excludes secondary school credentials and badges, of which Mozilla says there are now more than 1 million.
3. The Credential Transparency Initiative was a project of George Washington Uni-

versity's Institute of Public Policy, in collaboration with Workcred (a subsidiary of the American National Standards Institute that seeks to improve the credentialing system), the Center for Workforce Development at Southern Illinois University at Carbondale, and several distinguished consultants. Funded by the Lumina Foundation, the project's steering committee consisted of senior-level representatives of the American Association of Community Colleges, the American Council on Education, the Business Roundtable, the Committee for Economic Development, the National Association of Manufacturers' Manufacturing Institute, the University Professional and Continuing Education Association, and the U.S. Chamber of Commerce Foundation.

4. For more information about Credential Engine, see "Building an Expanded Public-Private Data Infrastructure for the Credentialing Marketplace" by Robert Sheets in Volume 3 of this book.
5. For a technical explanation of the CTDL and the registry, go to <http://www.credreg.net/>.
6. The grant came from Credential Engine, utilizing funds from the Lumina Foundation.
7. Like many states, Indiana had legislative mandates and executive orders to accomplish this goal. It also has been and remains a very active member of the 13-state Multi-State Collaborative on Military Credit, a partnership between states and the Midwestern Higher Education Compact.
8. SOLID has contracted with the U.S. Department of Defense to link education, training, and employment opportunities for service members and veterans.

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