

## A Guide to Key Initiatives for the Connected Learn and Work Ecosystem by Stage of Progress, Timeline, and Relation to other Related Work<sup>1</sup>

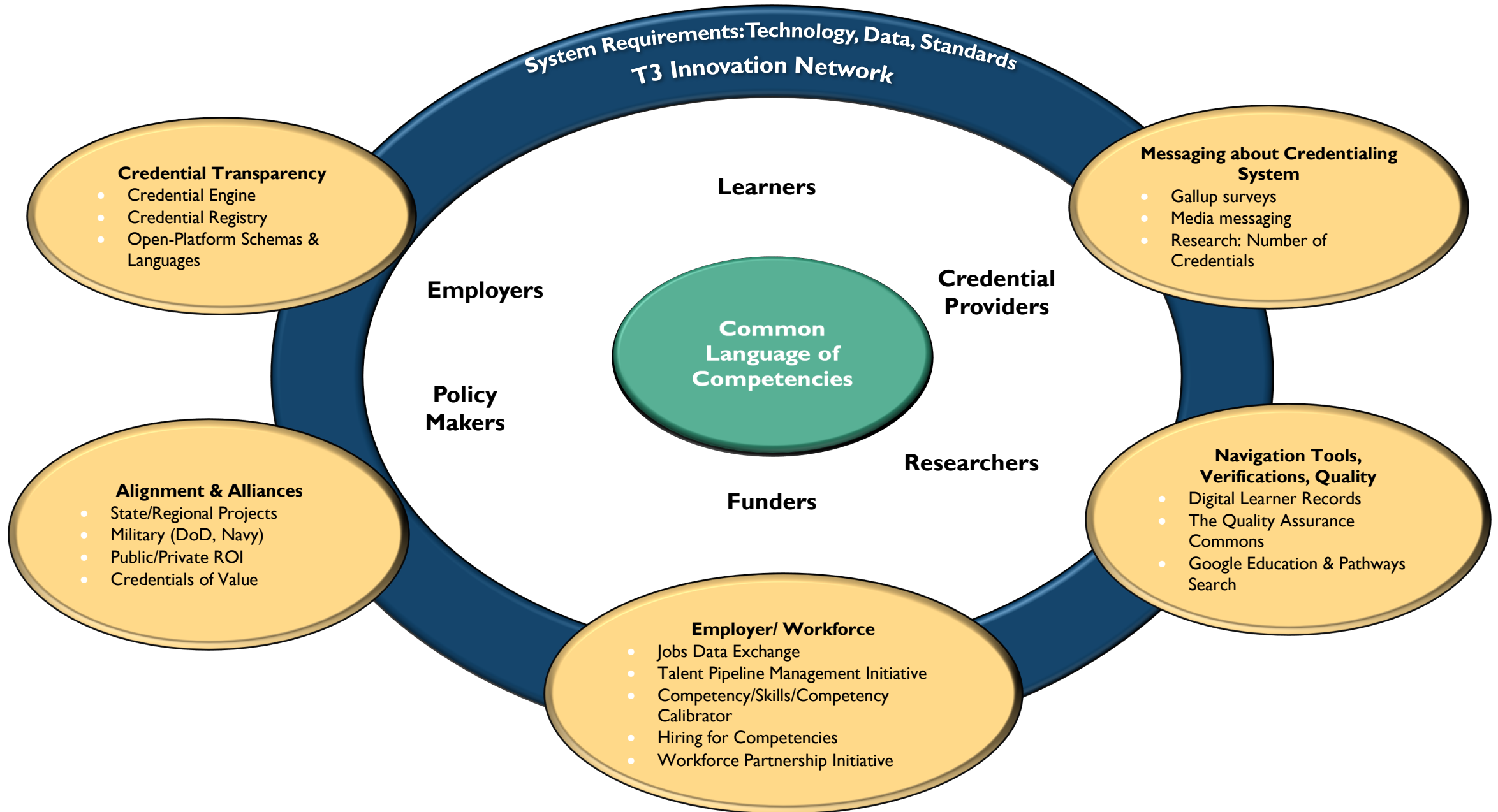
Stage 5: Created, tested, scaling, at/or past tipping point, financial sustainability
Stage 4: Created, tested, scaling, supported extramurally
Stage 3: Created, in testing (proof of concept) phase, supported extramurally
Stage 2: New effort, under construction, supported extramurally
Stage 1: Drawing board (conceptual stage)

Goal/Key Initiatives	<2018	2018	2019	2020	2021	2022	2023	2024	2025
<b>Build Credential Transparency Infrastructure</b>									
Credential Engine	1/2	3	4	4	4	5	5	5	5
Credential Registry	1/2	3	4	4	4	5	5	5	5
Linked, Open Languages/Schemas (CTDL & CTDL-ASN)	1/2	3	4	4	4	5	5	5	5
<b>Accelerate Ecosystem Developments through Alignment/Alliances</b>									
Credential Engine: State and Regional Partnerships	1/2	3	3	4	5	5	5	5	5
Schmidt Futures: American Dream Advancing State/Regional Workforce/Education Data Initiatives		1	2	3					
Credential Engine: National Sector Initiatives	1	2	3	4	4				
Credential Engine: Military: Navy Research and Development and Training Transformation	1	2	3						
Credential Engine: Military: Department of Defense	1	2	3	4	5				
Credential Engine: International Pilots	1	1	2	3	4				
Credential Engine: 3 <sup>rd</sup> Party Review of Tipping Point Strategies ( <i>Urban Institute</i> )		3	3	3	4	4			
<b>Create and Implement Technology/Data/Standards to Drive and Connect Systems</b>									
Credential Engine: Credential Registry Learn and Build Summit Series (apps)		3	3	4					
T3 Innovation Network (10 pilot projects)		2	2						
<b>Advance Understanding of Credentials of Value (COVs)</b>									
Develop Public-Private Ed/Cred. Data Infrastructure for Earnings & ROI ( <i>Nat'l Student Clearinghouse</i> )	1/2	3	3	3	4	5	5	5	5
National Skills Coalition: State Identification of COVs	2	3	3						
Education Strategy Group: State Identification of COVs	2	3	3						
Credential Engine: Use of Credential Registry as part of ETPLs/other eligibility determinations		1	2	3	4	5	5	5	5
<b>Advance Employer/Workforce Signaling for Credential Transparency</b>									
Job Data Exchange (JDX)		2	3	3	4	4	4	4	4
Talent Pipeline Management	3/4	4	4	4	4	4	4	4	4
Common Employability Skills Framework	3/4	5							
Connecting Credentials: beta Credential Framework	2/3	3	4						
Markle Foundation: Skillful	1/2	3	3	4	4	4	4	4	4
Business Roundtable: Workforce Partnership Initiatives (10)		2	3	4					
<b>Advance Navigation Tools, Verifications, Quality Assurance</b>									
Google Education and Pathways Search		3							
Digital Learner Records	3	4	4	5	5	5	5	5	5
The Quality Assurance Commons	2/3	4	4	5	5	5	5	5	5
<b>Expand Messaging around Credential Transparency</b>									
Credential Engine: Inventory and Mapping of All Credentials in U.S.	4	4	4	4	4	5			
Gallup Surveys	4	4	4						
Messaging Through Media	4	4	4						

<sup>1</sup>The category of multiple pathways to credentials in the work and learn ecosystem (more than 20 types of pathways) is not included in this map.



# Stakeholders & Key Initiatives for Connected Learn & Work Ecosystem



## Key Project Details

### Build Transparent Credential Infrastructure

#### Credential Engine

A 501(c)3 based in Washington, D.C. whose mission is to bring transparency to all credentials in the marketplace ([www.credentialengine.org](http://www.credentialengine.org) and [www.credreg.net](http://www.credreg.net)), reveal the marketplace as it exists, improve credential literacy, and help individuals and institutions make more informed decisions about credentials. The rationale for Credential Engine is founded in the recognition that the marketplace of credentials in the United States is large, growing, complex, and inefficient. There are at least 334,000 confirmed unique credentials in the U.S., including diplomas, badges, certificates, certifications, licenses, apprenticeships, and degrees of all types and levels. In such an expansive and chaotic marketplace, which is upwards of \$2 trillion in size in the U.S. alone, credentials remain the most important and common signal of an individual's knowledge, skills, and abilities. And, credentials are the best signal employees have of the competencies required for particular occupations. Open, transparent data on credentials, competencies, and outcomes is fundamental to improving access to opportunity, increasing accountability, and aligning education and training offerings with employer needs. True transparency requires agreed-upon standards. There must be common, open standards for describing credentials and competencies that allow for trusted search, discovery, and comparison. However, until recently there has been no standard, common framework for how to describe and compare credentials.

#### Credential Registry

Credential Engine has built a cloud-based Credential Registry, which is designed to house common, searchable, and comparable information about all credentials—from diplomas, badges, and certificates to licenses, certifications and degrees of all types and levels. By using this Registry, students, credentialing bodies, employers, and more will have access to critical credentialing data needed to make decisions about both education and career. In order to maximize the data's utility, it must meet both minimum data standards, and be kept current. The web-based Registry acts as a central location to collect, maintain, and connect up-to-date information on credentials in the marketplace. All credentials in the Registry have been voluntarily submitted by the organization that offers those credentials.

#### Open languages/schemas

The Credential Transparency Description Language (CTDL), which describes *credentials* and *credential providers*, and Credential Transparency Description Language - Achievement Standards Network (CTDL-ASN), which describes *competencies*, are open-source schema that together provide standard specifications for describing, searching, discovering, and comparing credentials on the World Wide Web. CTDL and CTDL-ASN are modeled on the Worldwide Web Consortium's Resource Description Framework (RDF) for describing and linking data on the Semantic Web, meaning that the language is both human and machine-readable and can be linked to other related data. Creation and use of these languages are founded in the recognition that the easiest, most efficient way to ensure transparency of credentials is for all organizations that provide credentials to describe those credentials on their websites using a common language. CTDL is a schema (type of mini-language people and systems can use to understand each other even if their data comes from different sources) that anyone can use to share information about credentialing data. CTDL not only provides a common and unified way of describing information in the Credential Registry, it also is an open language that can be used on the Web. This feature makes it easier for students, businesses, researchers, and automated systems to discover, understand, and compare information about credentials from a variety of sources.

CTDL is used in the Credential Registry. CTDL's over 300 terms allows credentialing bodies of all types, from institutions of higher education to licensing boards, to describe their organization and credentials in a common way. To ensure users have a minimum amount of data by which to compare the credentials published to the Registry, Credential Engine has developed a policy to require a minimum set of data. CTDL is used with the Open Applications Marketplace,

which allows organizations to build customized applications that use the Registry's data—which is stored in the common CTDL format—to access credentialing information. Apps will serve a wide variety of audiences, including students and workers, veterans, career and guidance counselors, employers, educators, and policymakers.

CTDL is accessible on the open web and, once adopted by [Schema.org](https://schema.org) as the standard for describing, searching, and comparing credentials on the Internet, all credential data posted to the web will be able to be more easily and efficiently discovered by search engines as well as used to populate the Credential Registry. CTDL is openly available through a Creative Commons Attribution 4.0 International License. It is also consistent with certain federal policies and programs on open data and the use of standards, including the [Open Data Policy](#), Office of Management and Budget (OMB) Circulars [A-119](#) and [A-130](#), and the [Federal](#) and [Defense](#) Standardization Programs. Credential Engine harmonizes with widely used international standards for the web such as [Schema.org](https://schema.org) and [Open Badges](#). Credential Engine also works in partnership with international standards bodies such as [PESC](#), [IMS Global](#), and the [HR Open Standards Consortium](#) to improve standards and data interoperability. The CTDL is modeled on the [\(W3C\) Linked Data specifications and best practices](#) guiding principles and earns five stars in the [W3C 5-Star](#) deployment scheme for Open Linked Data.

Structured data is machine-readable and used by search engines to understand the content of web pages. Linked Data is a type of structured data that links between systems via the Web. When data is both structured and linked, it becomes a powerful tool that search engines and other systems can leverage. Linked Data is at the foundation of the Semantic Web, which is all about (a) making meaningful links between data points understandable to humans and machines alike; and (b) providing the means for inferring new data from existing data. There are several ways to express Linked Data including JSON-LD. Google provides an excellent explanation of structured data and how search engines can take advantage of it (and in turn, how websites that make use of it benefit from doing so). Google prefers JSON-LD over other formats for expressing structured linked data. Unlike RDFa, using JSON-LD maintains a clean separation between the data and your page's markup.

CTDL is available for any organization to use within their own systems for interoperability and to output Linked Data. Using the CTDL to publish to the Credential Registry is voluntary. Publishing options include manual entry, bulk upload, using an Application Programming Interface (API), or allowing data to be directly “harvested” from an organization's website. To publish to the Registry using any of the publishing options, credentialing and quality assurance organizations can create an account through the [Credential Engine accounts website](#).

## Accelerate Ecosystem Developments through Alignment/Alliances

### Credential Engine: State and Regional Partnerships

Credential Engine has a state and regional strategy to advance its mission and promote use of CTDL / CTDL-ASN and the Credential Registry. Credential Engine partners with key agencies and organizations to identify and operationalize the use of transparent credential information that allow states, regions and stakeholders to improve services, practices, programs, and policies for the benefit of students, workers, veterans, employers, educators, policymakers, and others to make more informed decisions in the marketplace of credentials and to significantly advance the publishing of credentials in those states and regions to the Registry.

- **Indiana** — Through the Commission for Higher Education, Indiana was the first state scale-up initiative, focusing first on publishing information about healthcare credentials, including connections to military training and credentials. This was part of Governor Holcomb's Next Level Indiana initiative to demonstrate which credentials are related to high-priority industries. Indiana is now in the second phase of its project, working with all institutions to publish data about all credentials to the Registry. They will be the first state to feature Credential Registry data on their website for residents to access directly.
- **New Jersey** — Led by the Department of Labor and Workforce Development, New Jersey's state scale-up project is focused initially on publishing information about credentials in seven targeted industries: Advanced Manufacturing; Construction & Utilities; Financial Services; Healthcare; Retail, Hospitality, & Tourism; and Transportation, Logistics, & Distribution. The New Jersey team is also working with other New Jersey agencies and systems to develop use cases and strategies for further scale-up, such as integrating Credential Registry data into their revamped Career Connections platform and exploring how their ETPL can use the CTDL and Registry as its backbone.

- **Kansas** — Led by the Board of Regents, Kansas will publish all active degrees, certificates, and short-term technical programs offered by the public postsecondary schools in the state with the goal of increasing visibility and comparison across state lines. Further, they will use the Registry to articulate credit for military experience and to indicate high-demand, high-wage credentials. They will be the first state to use the API across the system and are currently working to map the data they currently have to the CTDL.
- **Michigan** — Michigan’s Talent Investment Agency —the state’s primary workforce development office— will focus on publishing credentials related to healthcare, information technology and computer science, manufacturing, business, and other professional trades to support the Governor’s Marshall Plan for Talent. By completing this project, they will be able to better identify and map career pathways and expand Registered Apprenticeships in these high demand sectors in Michigan. Additionally, they will integrate credential data from the Registry into their free Career Pathfinder tool (<https://pathfinder.mitalent.org>) enabling students and jobseekers to access more complete information about career pathways and training options. They are currently gathering information and building the working group to begin the publishing of credentials to the Registry.
- **Ohio** — Ohio’s scale-up project is led by its Department of Higher Education with help from stakeholder partners. They will coordinate publishing data about credentials in the information technology and cybersecurity sectors. Their aim is to reveal the labor market value of credential options, strengthen pathways from secondary career technical education to postsecondary credentials, inform policy used for career and education advising in all Ohio secondary schools, and help ensure veterans are receiving proper credit for military training.
- **High Value Credentials for New England** — The New England Board of Higher Education (NEBHE) launched a project to work with Credential Engine to provide individuals, institutions, state policy leaders, and employers the tools to use a common language to describe credentials, evaluate the value of credentials, identify critical education and employment pipelines, and understand the skills and competencies obtained by earning a credential. The project focuses on four states where credentials issued by public and private higher education institutions, as well as third-party providers, will be published to the Registry in the sectors of healthcare, life/biosciences, information technology, and also business and finance.
  - **Maine** —The Maine Community College System formalized participation in August 2018, and publishing will begin in late Fall, with focus on the system’s recent badging initiative. The University System of Maine will kick off a pilot of at least five of the universities this Fall as well.
  - **New Hampshire** — Both the Community College System of New Hampshire and the University System of New Hampshire will use DXtera as a technical assistance provider to map program information to the CTDL and publish credentials to the Registry. New Hampshire is focused on its 65 by 25 attainment plan and sees this work as a vehicle for strengthening relationships with employers.
  - **Massachusetts** — NEBHE has been engaging the Department of Higher Education, Commonwealth Corporation, and a number of community colleges to launch in Massachusetts. There is significant alignment between this project and pathways initiatives, including Guided Pathways to STEM (GPSTEM) and Innovation Pathways.
  - **Rhode Island** — NEBHE has been working with the Office of the Postsecondary Commissioner to get publishing underway in Rhode Island in light of its aggressive attainment strategy. Identifying high-value credentials is a key aspect of the state’s attainment strategy, in order to prepare Rhode Islanders for well-paying, future-oriented jobs. NEBHE is also partnering with the Association of Independent Colleges and Universities of Rhode Island to support the participation of private institutions.
- **Colorado** — Working as part of a larger statewide, multi-agency effort to establish an interoperable data collaborative, credential data will be published with support from Credential Engine and other partners starting in early 2019 and running through 2020.
- **Washington** — Washington State is migrating data housed in its Career Bridge platform on over 6,000 credentials into the Credential Transparency Description Language starting in 2019, including over 3,000 programs that include wage and employment data as part of the state’s Eligible Training Provider List under WIOA.
- **Los Angeles** — The Los Angeles Area Chamber of Commerce, Credential Engine, and BrightHive are collaborating on an initial planning grant from the ECMC Foundation to map a strategy to publish and put to use data about all credentials in the Los Angeles region, including wage and employment information.

Additional funding will support Credential Engine’s ability to engage other states and regions to tee up new initiatives. A growing number of states and regions are interested, including, for states, California, Illinois, New York, Florida, Louisiana, Tennessee, Kentucky, Oklahoma, D.C., and Virginia, North Carolina, and Texas; and for regions, New York City, Chicago, Indianapolis, Detroit, Denver, San Diego, San Francisco, Dallas, and the Greater Washington D.C. area.

## **Schmidt Futures: American Dream Advancing State/Regional Workforce/Education Data Initiatives**

Many funders and organizations are pushing toward a shared vision of a more connected, open, and individual-centered data ecosystem that more effectively and equitably connects individuals to opportunity. This could be built now, or in the near future, through targeted investments that set the foundation for a modern, data-driven talent market. The barrier to this work to date has been difficulty getting access to the right datasets. To meet a patchwork of state and federal reporting requirements, state and local workforce agencies and state departments of higher education are required to collect a variety of disparate and disconnected datasets held in separate siloes across the state. These state-held datasets include: credential data from all providers, employment and wage data related to credentials and programs; employer job openings; eligible training provider names and programs across many public programs and pieces of legislation; and individual participant data for all publicly-funded programs. The piping for collecting this data already exists, and the data is structured and reported regularly. However, most states lack the capacity to link together, transform, and publish this data in ways that would help education and workforce intermediaries and individuals looking for new jobs, skills, and sustainable career pathways. Moreover, many agencies and education providers are reluctant to expose their data due to reputational, legal, or financial reasons.

Data collaboratives have unlocked value in other critical sectors of the economy—from healthcare to energy and education—by making information easier to access, share, and query. A similar opportunity now exists for the talent marketplace. Today’s American workers deserve better information and new digital tools to help them chart their own path through our rapidly changing, dynamic economy. Too many people remain unemployed and underemployed because they don’t know where to go to find help or to get the information they need to navigate the labor market.

A collaborative effort by funders is helping to achieve the breakthroughs the ecosystem needs by encouraging state and local governments to unlock their existing education and workforce datasets. The vision is that by 2025, every education and training program, credential, or upskilling opportunity in all 50 states will be publicly available, searchable on the web, and linked to their respective return on investment. Schmidt Futures, partnering with other funders, is issuing the American Dream RFP to assist a small number of states (1-3) to link their education and workforce datasets.

## **Credential Engine: Sector Initiatives (Retail & Hospitality; Information Technology/Cybersecurity; Healthcare; Manufacturing)**

Credential Engine has launched a National Retail and Hospitality Credentials Initiative, supported by the Walmart Foundation, and in collaboration with the National Retail Federation, National Restaurant Association, and the American Hotel and Lodging Association. This initiative, and other sector initiatives to follow, start with the employers in the sector identifying credentials that they most value, the data about those credentials they most care about, and how the use of the data will be of greatest benefit. Collectively, the members of the sector initiative work with the providers of these credentials to publish them to the Credential Registry. Then, Credential Engine is able to support the development of apps and tools to put the information into the hands of students, workers, employers, educators, and others.

Credential Engine is seeking to launch new sector initiatives in IT/cybersecurity, healthcare, manufacturing, and other identified sectors of importance.

## **Credential Engine: Military: Navy Research and Development and Training Transformation**

In 2013, the Navy launched a major initiative (Sailor 2025) to improve and modernize its IT systems with several personal initiatives to include two key goals: ensure its training, education, and maintenance systems are well linked and managed, and were appropriate match Navy Occupations to civilian occupations and their corresponding credentials. The latter requires that KSAOs (Knowledge, Skills, Abilities, and Other Characteristics) and credentials acquired in the military are transparent and have the ability to be continuously updated and refined. The Navy trains sailors to prepare for work (on ships, submarines, bases, and supply sites) using many tools it has developed: KSAOs, curriculum, assessments, and credentials that qualify sailors for specific tasks. These tools in turn are linked to an array of technical and nontechnical manuals, work process schedules, job task analysis, engineering drawings, parts lists, and maintenance plans designed to help sailors carry out their tasks. The systems and processes for these are currently cumbersome, difficult to manage, and dated. The Navy is partnering with Credential Engine based on the recognition that the Navy may be able to use the Credential Transparency Description Language as a typology to update its internal systems and publish its linked credentials to the Credential Registry. The partnership is 1) completing a gap analysis between the CTDL and Navy Task Classification Taxonomy; 2) mapping the CTDL to Navy specs that support data linked to various components of its training

artifacts; 3) linking the CTDL with all Navy KSAOs in its linked data classification and curriculum (e.g., “courses”); and 4) connecting the CTDL to KSAOs in the Navy’s Maintenance Task Analysis. This R&D work is guided by a Cooperative Research and Development Agreement (CRADA) signed by the Navy’s Research & Development Unit. If this work succeeds in aligning to competency and credentialing systems, Credential Engine can incorporate Navy linked credentials into the Credential Registry; the Navy can update its internal systems using a common credentialing language; civilian organizations can better understand Navy linked credentials; and veterans leaving the service can transition more easily into civilian jobs.

### **Credential Engine: Military Department of Defense**

The Armed Services strive to make their education and training outcomes transparent and receive the most credit possible by external academic and credentialing entities. This effort by DoD is enabling new collaborations with groups working to develop a common language of credentialing (or translation among languages). Since both active-duty military and veterans are seeking educational pathways to civilian jobs, community colleges are an important partner in military competency mapping and pathways work between military programs and civilian programs. DoD and the Services have invested in the mapping and funding of credentials that can be explored on the Credentialing Opportunities On-Line (COOL) websites. Each branch of the service has identified their occupations, provided descriptions, mapped them to jobs and credentials in the civilian workforce, and will pay for service members to attain civilian occupational credentials. They are collaborating and sharing data and working to raise awareness of military training and experience for employers, credentialing bodies, and other stakeholders.

Credential Engine is continuously collaborating with the Department of Defense on ways to publish all linked credentials that the military purchases for its uniformed and civilian personnel to carry out their duties, or funds in support of recruitment, readiness, professional development, and transition to the civilian workforce.

### **Credential Engine: International Pilots**

Credential Engine’s technologies—the schema (CTDL and CTDL-ASN), Credential Registry, publishing tools, and app development resources—are designed and intended to be applicable worldwide, allowing for common frameworks for the search, discovery, comparison, and analysis of credentials anywhere, and from any provider. Credential Engine is in discussions with OECD and UNESCO to pilot use of its technologies in a set of countries, some of which have more mature sets of frameworks for their education and training systems, and some of which have immature or non-existent frameworks and/or systems. Additional support for these international pilots and expansion will assist these potential projects to develop more quickly.

### **Credential Engine: 3rd-Party Review of Tipping-Point Strategies (Urban Institute)**

To achieve the vision of Credential Engine, the midpoint goal is to reach tipping point (*proposed definition: half of all credentials are in the Credential Registry, several apps are in use, and there is widespread adoption of the Credential Transparency Description Language*) within the next three years. The rationale for achieving tipping point is the critical need for transparency in the credentialing marketplace and risk that proprietary interests entering the market might develop approaches to meeting aspects of the Credential Engine vision through closed-platforms. As anchor funder of Credential Engine, Lumina commissioned an external evaluation of Credential Engine’s “tipping point strategy” in 2018. The evaluation results will assist Credential Engine, funders, and other stakeholders in making refinements in the strategy of acceleration in the next two years for fine-tuning and redirecting, if needed, Credential Engine processes. The evaluation will follow a multi-pronged formative design to address key questions about the status of Credential Engine, how it’s used, and progress towards achieving a “tipping point” regarding common definitions, transparent access to credentials, and adoption of the Registry by various users.

## **Create and Implement Technology/Data/Standards to Drive and Connect Systems**

### **Credential Engine: Credential Registry Learn and Build Summit Series**

Fostering and supporting an open application marketplace for the development and deployment of tools, services, and resources that use data from the Credential Registry, either on their own or in combination with data from other sources, is an essential goal for Credential Engine and the entire marketplace. To this end, Credential Engine is hosting an initial series of “Learn and Build Summits” (hackathons of a type) to advance such a marketplace. A first version

of a software development kit (SDK) has been released, but a wide range of other tools and services need to be developed for this marketplace to take hold and mature. Credential Engine also seeks to develop a range of apps for distribution to and use by community-based organizations, other nonprofits, and public agencies that may lack either the resources or development capabilities to develop their own apps.

### **T3 Innovation Network**

The T3 Innovation Network launched March 2018 to bring businesses, postsecondary institutions, technical standards organizations, and human resource professionals and their technology vendors together to explore emerging Web 3.0 technologies in an increasingly open, decentralized public-private data ecosystem. Phase 1 consisted of a background paper, four work group reports, and a final Phase 1 Report that identified 10 pilot projects to build a public-private data and technology infrastructure from January 2019 – December 2020 (during Phase 2). The T3 Network has grown to more than 200 organizations and 400 participants to advance learning on how to best leverage new technologies for credential attainment and drive the creation of solutions to create equitable outcomes. The 10 pilot projects are grouped into four topic areas that will be implemented and build off one another throughout Phase 2, starting in March 2019:

- Open Data Standards — The work promotes technical standard harmonization and interoperability to support competency data exchange, worker/learner records, and digital identities and its use by government entities. *Projects:* Data Standards Harmonization; Public-Private Standards Development and Use by Government.
- Comprehensive Learner & Worker Records — The work identifies gaps in and develops public-private standards for employment records, earnings records, and learner records; and explores and promotes adoption of enhanced public-private standards by federal and state entities. *Projects:* Employment & Earnings Record Standards; Learner Record Standards.
- Open, Shared Competency Infrastructure — The work develops guidance and tools to author, curate, translate, and distribute open and shared competency and skill statements across all stakeholders in the talent marketplace. *Projects:* Competency Data Exchange; Competency Analysis and Translation; Learning Outcomes Exchange; Public-Private Use of Open Competency Data.
- Linked, Individual Level Data — Work designs protocols for empowering individual workers and learners with their data through new and emerging self-sovereignty technologies, such as distributed ledger and block chain. *Projects:* Data Collaboratives for Individual-Level Data; Empowering the American Student and Worker.

## **Advance Understanding of Credentials of Value (COVs)**

### **Developing Public-Private Education and Credentialing Data Infrastructure for Attainment and Outcomes**

Due to the increasing diversity of credential-issuing mechanisms and providers and their scope exceeding federal and state governmental regulatory and collection mechanisms, a public-private education and credentialing data infrastructure is vital to enabling growth while understanding successful and less successful approaches. In 2016, the National Student Clearinghouse, in partnership with the National Association of Manufacturers and the United States Census Bureau, began a project to collect, report, match, aggregate, and analyze records on credit and non-credit education, industry certifications, and employment and earnings. This work expands the national education data infrastructure built by the Clearinghouse over its 25-year history and begins the path to a public-private national education data infrastructure that will enable the identification, analysis, and reporting of education to workforce pathways. This project is now focused on extending this infrastructure to include non-credit education at two-year and four-year institutions and certifications but is designed to be expandable to apprenticeship programs and all types of credentials. Work under this project has focused on four distinct but complementary tasks: 1) formatting/reporting of attainment records from industry certification providers; 2) formatting/reporting of non-credit course data from state community college systems; 3) matching of credit and non-credit education and certification data and analysis of those matched records to determine combinations of credentials and common education pathways; and 4) matching/analysis of combined education/certification records with employment and earnings data (and the aggregation of that data to meet disclosure requirements): United States Census Bureau to match with a set of employment, earnings, and demographic datasets available at that agency and create a series of aggregate-level reports on the impact of education and credential attainment on labor market outcomes. Datasets expected to be available from the Census Bureau include UI Wage Records from the Longitudinal Employer–Household Dynamics (LEHD) program, W-2 and 1099 tax records from the Internal Revenue Service, population demographics from the decennial census, and employer



demographics from the economic census.

### **National Skills Coalition: State Identification of Credentials of Value**

National Skills Coalition (NSC) is assisting states in collecting data on non-degree credentials and identifying non-degree credentials of value. The non-degree credentials include certificates from public and private institutions, apprenticeship certificates, industry certifications, and licensures. State data collection and maintenance includes individual-level administrative records of credential attainment, demographic data, and incorporating data into state longitudinal data systems. NSC surveyed all 50 states and D.C. on their status of data collection and how they identify credentials of value. NSC provides a nine-step guide for states on how to measure non-degree credentials and provides technical assistance to select states on implementing the guide, including best practices from other states.

NSC has also led a conversation with national higher education and business groups about high quality credentials that improve long-term educational, employment and earnings outcomes across racial/ethnic groups. There is general consensus that this must be a state-driven process. However, there is unclear and sometimes conflicting guidance for states on how to create an operational high-quality definition and establish the policies and practices to evaluate credentials based on that definition. In the absence of a state definition or guidance, there is not a way for these providers to understand what credential programs lead to further education and employment. In the absence of this guidance, these organizations are inadvertently offering credential programs that are dead-end pathways. During 2019, NSC will conduct work in three phases:

1. Draft consensus definition through a “Leading State” working group that will help identify policies and processes necessary to support and expand attainment of these credentials.
2. Vet definition by a wider group of state partners and quality assurance national advisory panel; i.e., stakeholders interested in measuring and evaluating non-degree credentials but have not yet taken significant steps towards establishing a state quality assurance model. This process will allow states to identify potential obstacles to implementation, helping refine the definition to make it universally accessible and identify alternate policy levers that states may use to fully support adoption of the definition moving forward. A significant outcome will be a shared statement or principles document that both endorses the proposed state-level definition.
3. Publication and promotional event/activities: publication that outlines the new state-level definition of quality non-degree credentials, as well as case studies from Leading States on policy and practices that can serve to best operationalize the definition.

### **Education Strategy Group: State Identification of Credentials of Value**

Credential Engine recently published a report estimating over 310,000 types of postsecondary credentials in the U.S., not including digital badges which would raise the number to over 600,000. Roughly 28% of these are nondegree credentials (i.e., less than an associate degree or higher). Numerous reports and studies have shown that people with higher levels of postsecondary attainment are often, on average, associated with more positive work outcomes: higher earnings, lower unemployment, etc. These reports often compare high school graduates (or less) with associate degree, bachelor’s degree and graduate and professional degree holders. We need to learn more about individuals whose highest educational attainment is a nondegree credential (e.g., postsecondary certificate, certification and/or license). Less is known about the labor market (and quality of life) outcomes of individuals with only nondegree credentials. This work will increase knowledge of how states, employers, and policymakers can more systematically identify and capture data on nondegree credentials of value (CoV’s) through (ideally) integrated data systems within states (K-12, higher education and workforce). Work will include four phases:

- Developing tools and resources states and other stakeholders can use to assess and strengthen their systems to capture data on CoVs: self-assessment framework to help states identify strengths and gaps in their current processes of collecting data on CoVs; model processes for identifying CoVs that can be adopted or adapted by states, building on work underway in several states; employer signaling tools to share lessons from several states leading in CoV work with other states; sample data quality standards and data-sharing agreements to help states and others efficiently collect reliable information on student credentialing rates to include nondegree credentials.
- Work with 6-8 states in a Credentials of Value Institute to help them assess and improve their systems. CoV Institute will include lead-off convening in spring 2019 to focus states on the intended cross-sector outcomes of the work, establish timelines and routines for that work, and provide assistance on how each team will use the suite of tools and resources; state-led credential transparency work using the tools, with virtual support from ESG, to preliminarily create formal state list of priority industry-recognized credentials for K-12, postsecondary, and workforce development,

and identify those that will count for postsecondary course credit; deployment of expert team that includes ESG team as well as other leading state and national experts to examine each participating state's work to date, identify strengths and gaps, and form recommendations for additional work through the remaining grant period.

- State-led pathways analysis that will include each state examining the extent to which credentialing opportunities are embedded within their high school to college pathways in high-skill, high-demand fields – with coaching support from ESG; states at this time will also undertake the additional work on priority industry certification lists identified by the expert team.
- Creation of State Aggregation Stories that capture each state's work, including formal priority list of industry-recognized credentials, delineation of those that count postsecondary course credit, and identification of industry credentialing opportunities embedded in pathways that begin in high school and continue into higher education – so that we can disseminate lessons learned and highlight leading state action that can be replicated in other states.

### **Credential Engine: Use of Credential Registry as Part of Eligible Training Provider List (ETPLs) and Other Eligibility Determinations**

Agencies and organizations tasked with determining a set of credentials, or programs that lead to credentials, that are eligible to be offered and paid for as part of public programs have historically struggled with the process of setting appropriate standards, being able to measure credentials against those standards, and ensure that they are actively able to include the complete set of all credentials that appropriately meet the standards set by the governing body. The use of common schema across all credentials and an open, shared Registry could dramatically improve the development, management, and value of such eligibility lists, including those for WIOA, Perkins CTE, state-approving agencies for GI Bill funds, and other programs and services.

## **Advance Employer/Workforce Signaling for Credential Transparency**

### **Job Data Exchange (JDX)**

Credential providers rely on limited database solutions that make competency and credential requirements from job postings and employers available. These solutions include private companies such as Burning Glass and EMSI, who scan job postings and use proprietary algorithms to sell competency and credential data to education providers. The only open, free solution is the federally-funded Occupational Information Network (O\*NET) database created through periodic surveys of employers for a select number of job functions in the labor market. There are multiple challenges with the current options: 1) private data and analysis are costly and not all providers can afford to purchase the data, 2) O\*NET is widely criticized for the limited number of job functions analyzed and the data lags years behind real-time labor market changes, and 3) in both public and private options, the competency and credential language used are inconsistent and often inaccurately reflect the job function. These problems are often described as an “employer signaling” challenge, where employers are trying to find ways to signal more accurately to credential providers what competencies and credentials are needed in the labor market. Employer signaling challenges can be resolved by creating a Job Data Exchange that uses advanced, open data infrastructure and provides human resource managers guidance on job description data, a resource library, and job description data repository for developing, benchmarking, and improving job descriptions and postings. The Exchange will do this by promoting the use of open data standards and tools (e.g., the credential transparency description language (CTDL) and CTDL-ASN from Credential Engine, and the beta Credential Framework) to normalize competencies and credentialing language across employers. Advanced technologies can be used to ensure the improved job description data is made available in real time, at low to no cost to credential providers. This work can also make HR managers and others responsible for talent sourcing aware of other efforts such as Credential Engine, frameworks, and assessment tools. Furthermore, the JDX can integrate the use of digital, competency-based learner records into the talent sourcing process. This approach will support more advanced artificial intelligence and machine learning applications in improving job matching. The US Chamber of Commerce Foundation is leveraging participants in the Talent Pipeline Management project that brings together employers, employer collaboratives, education providers, and HR technology service providers. Stakeholders are engaging in the development of the prototype, to be used by employers and their selected HR providers to distribute improved job description information including competency and credentialing requirements to talent sourcing partners and students and job-seekers. In February 2019, the initiative announced seven pilot partner teams across six states and the District of Columbia that will participate in co-designing and pilot-testing the JDX tools and resources. Pilot partner teams are comprised of education and training providers, employers, HR professionals, and HR

technology vendors representing the industries of healthcare, defense, utilities, energy, and manufacturing. An advisory committee has also been formed to provide recommendations and feedback on the design, data integration, pilot, evaluation, adoption, and future use of the JDx.

### **Talent Pipeline Management (TPM)**

The U.S. Chamber of Commerce Foundation's Talent Pipeline Management™ Initiative is a demand-driven, employer-led approach to close the skills gap that builds pipelines of talent aligned to dynamic business needs. The following funders have supported this work to date: Strada, J.P. Morgan Chase & Co, Kellogg, and Walmart. The TPM Academy trains state and local leaders, business associations, employers, and economic development agencies to drive partnerships with their education and training providers based on need. Work is happening in 26 states across 7 TPM Academies involving over 200 partner organizations and an estimated 2,000 employers. The Chamber Foundation works with a board of advisors to develop a training curriculum designed to walk business-led organizations through the process of implementing TPMTM principles. The curriculum starts at Strategy 0, gathering appropriate stakeholders and generating buy-in for the process, through Strategy 6, post-implementation continuous improvement. Growth of the TPM initiative has led to The National Learning Network, a national network of TPM leaders and champions who act as Peer Advisors to businesses and states new to the process. Each year in October, the initiative hosts a national workforce conference that brings these audiences together to discuss best practices, challenges, and successes.

### **Common Employability Skills Framework**

The Common Employability Skills Framework was created by the National Network of Business and Industry Associations as a first step toward laying out the foundational skills that all individuals need for current and future jobs, no matter where they work. This work provided a foundation for the National Network to identify industry-recognized competencies and credentials that have real value for students, workers and employers based. The work was based on the understanding that there are a number of industry-recognized credentials that represent the technical or job-specific skills needed for certain industries or occupations, and these credentials help students and workers validate their knowledge, skills, and abilities while helping employers find candidates who are poised for success. The National Network, led by the Business Roundtable from 2013-2018, brought together a cross-section of 21 business and industry groups which represented economic sectors that will be the source of nearly 75% of projected job growth by 2020 to help communicate to learning institutions the skills employers are looking for, as well as to help industries and employers adjust their hiring and business practices to focus on the competencies and skills workers have and are developing in the rapidly-evolving economy.

### **Connecting Credentials: beta Credential Framework**

The beta Credential Framework (may be renamed the Competency Calibrator in 2019) was created and tested between 2015-2018 by the Connecting Credentials national initiative led by the Corporation for a Skilled Workforce. The Framework was tested in partnership with more than 20 community colleges in the Right Signals Initiative managed by the American Association of Community Colleges. The Framework has been found to be beneficial in assisting colleges in functions such as: 1) planning new programs; 2) reviewing existing programs, especially five-year reviews following approval by state coordinating boards required by many colleges; 3) determining how to connect pathways that contain different types of credentials; 4) reviewing competencies within current programs; 5) aligning credential programs to employer needs; and 6) creating pathways to stackable university programs. The tool is being used to calibrate what level and mix of competencies are associated with a given credential, job description, and/or educational program of study. An important outcome of this work is to make the competencies associated with a given credential, program, or job description explicit rather than implicit – including colleges aligning more precisely their program requirements with the mix and levels of competencies needed by relevant employers.

### **Markle Foundation: Skillful**

Skillful, a non-profit initiative of the Markle Foundation, is dedicated to enabling all Americans – particularly those without a four-year college degree – to secure good jobs in a changing economy. In partnership with Microsoft and others, Skillful is developing skills-based training and employment practices in collaboration with state governments, local employers, educators, and workforce development organizations. A skills-based approach to hiring reduces bias and creates a more equitable job market that “screens in” for skills and clarifies credential requirements. Skillful and its partners are working to create a labor market in which skills are valued, and people can more easily access the information and education they need to keep pace with technology's impact on work.

The Skillful model focuses on driving change in five areas through the use of technology, data, partnerships, and new practices:

- Facilitating widespread adoption of high-quality skills-based employment practices.
- Aligning educational programs to employment needs by informing and driving collaboration through industry-specific approaches.
- Driving increased transparency and data around educational outcomes to make it easier for job seekers to understand the value of different training.
- Encouraging widespread understanding of the multiple pathways to success that are available in the digital economy.
- Creating a system of effective, evidence-based coaching to help job seekers successfully achieve career growth and opportunities for good-paying jobs in high-growth industries.

Skillful's work started in Colorado by bringing together businesses, state government, nonprofits, and educators to forge a new way of creating and accessing opportunity. Using data and technology tools, this work is providing transparency around the value of educational and training programs, giving educators a clearer picture of which skills are in demand in their area, and giving businesses a better sense of which skills are available in their applicant pool. When employers better define the skills they need and offer ways to train at every stage of a career, they expand opportunity for all Americans and build a stronger workforce for themselves. The Skillful Governor's Coaching Corps was developed to equip career coaches with the skills, tools and support they need to help people recognize the skills they have, the training they may need, and the employment opportunities within their reach. Skillful has also launched a "virtual" Coaching Community of Practice that enables a broader set of coaches to have access to tools and insights to make them more effective in connecting individuals to good jobs and careers. Skillful's aim is to help job seekers access a variety of choices to achieve lasting career success; for employers to find the skilled talent they need to grow; and for educators to train people with the skills required to compete in today's economy.

In October of 2018, Indiana Governor Eric J. Holcomb, the Markle Foundation, and Microsoft announced Skillful Indiana, bringing investment, training, and tools to augment Indiana's Next Level workforce development agenda. The launch of Skillful Indiana brought together the Markle Foundation, Microsoft Philanthropies, LinkedIn, Walmart, Lumina Foundation, Purdue University and Purdue Extension with the Governor's Workforce Cabinet and local workforce development boards to create better pathways to good jobs for Hoosiers. Skillful Indiana is working with Indiana businesses and the state's educational community to equip Hoosiers with the marketable skills that are the new currency of the digital economy.

In addition to its direct operations in Colorado and Indiana, Skillful in 2018 created the Skillful State Network, a collaboration among 20 governors to accelerate the transformation of the U.S. labor market at a scale and pace not possible through individual state actions: Colorado, Arkansas, Delaware, Illinois, Indiana, Massachusetts, Montana, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, Rhode Island, South Dakota, Tennessee, Utah, Vermont, Virginia, Washington, and Wisconsin. Network members share assets, foster partnerships, and refine methods of engagement within their labor markets. The first asset shared was the Skillful State Playbook, a step-by-step guide to building a skills-based labor market, which includes tools and resources for implementation. The 20 states in the network came together virtually and in-person during 2018 and shared experiences on topics including aligning state workforce system, enhancing career navigation, improving data and transparency and other shared interests in driving greater effectiveness in their workforce, education and training systems. The Skillful State Network is continuing its operations in 2019 and looking to increase its activities based on the strong demand of its members.

### **Business Roundtable: Workforce Partnership Initiative**

The Workforce Partnership Initiative (WPI) is a CEO-led initiative created by the Business Roundtable to increase the skills and diversity of America's workforce by building strategic partnerships between business, nonprofits, and educational institutions. More than 30 CEOs from leading U.S. companies are partnering with local colleges and universities in several U.S. regions to fill high-demand jobs in STEM-related fields such as cybersecurity and data analytics, and in skilled trade positions such as technicians, machinists, and welders. These partnerships are helping to better align career and educational pathways—ensuring that companies have a strong supply of talent and that employees are afforded increased opportunities for development and growth. To address persistent skills challenges and drive economic growth, Business Roundtable is leading a new multi-city effort to develop talent and best-in-class training aligned with the needs of growing businesses in those communities. The WPI is focusing on four significant workforce skills challenges:

- Boosting fundamental workforce readiness skills, including basic math, reading, and problem-solving skills.
- Increasing STEM skills within America's workforce and growing the number of job candidates who are qualified for the jobs of today and tomorrow, including in the high-demand fields of cybersecurity, data science, engineering, and computer science.
- Growing the number of workers with specialized skills to fill trade positions such as machinists, welders, electricians, and sheet metal workers.
- Engaging, training, and employing women, minorities, veterans, and other populations who are underrepresented in STEM occupations and digital jobs of the new economy.

WPI regions were launched in 2018 with lead Business Roundtable companies, supporting partners, and the skills/education focus of each regional initiative:

- Chicago, IL—Midwest Region: *Lead Companies*: AON, Accenture. *Supporting Partners*: McDonald's, Risk Management Solutions of America, Inc, Walgreens, Zurich. *Education/Skills Focus*: Build upon the successful apprenticeship model used by Aon and Accenture to expand the number of participants and increase skills for people to enter careers in white-collar occupations such as HR, IT, software engineering, and health care.
- Cleveland, OH—Midwest Region: *Lead Company*: Eaton Corporation. *Supporting Partner*: Altec Industries, Inc. *Education/Skills Focus*: Companies are partnering with Cuyahoga Community College to develop a Department of Labor certified apprenticeship program in advanced manufacturing. The program will be replicated and scaled for use at additional company facilities, with work summarized in an apprenticeship playbook and disseminated to WPI companies for future replication.
- Columbus, OH—Midwest Region: *Lead Company*: American Electric Power. *Supporting Partners*: Accenture, Ernst & Young, JP Morgan Chase & Co. *Education/Skills Focus*: Companies will collaborate with higher education institutions to replicate or sale existing partnership models. Programs will target undergraduate students, incumbent employees and students matriculating through K-12, with goal to advance digital skill sets of students through work-based learning.
- District of Columbia/Maryland/Virginia: *Lead Companies*: Northrop Grumman Corporation, Capital One. *Supporting Partners*: AWS, EY, FIS, IBM, Jacobs Engineering, JP Morgan Chase & Co., Lockheed Martin, MedImmune, MedStar Health, McKinsey & Company, Walgreens, Washington Gas. *Education/Skills Focus*: Work alongside local employers, colleges and universities, and the Greater Washington Partnership to develop unique industry-recognized education credentials and increase the number of workers graduating with core digital skills competencies such as data analysis, cybersecurity, artificial intelligence/machine learning, and cloud computing needed in high-demand engineering and computer science occupations, and data analysis and visualization in non-technical occupations.
- Milwaukee, WI—Midwest Region: *Lead Company*: Rockwell Automation, Inc. *Supporting partners*: DOW Chemical, FIS, ManpowerGroup, Northwestern Mutual (additional outreach to other partners). *Education/Skills Focus*: Develop steady pipeline of talent that meets the region's workforce needs in the areas of industrial automation and the industrial internet of things (IIoT). This will include a large expansion of work-based learning programs that align high school programs into certificates, and then lead to apprenticeships-style opportunities at the associates-level, and on to research internships and co-op-like opportunities at the bachelor's level.
- New York City, NY—Northeast Region: *Lead Company*: IBM Corporation. *Supporting partners*: Aon, Guardian Life, Johnson & Johnson, JPMorgan Chase, MasterCard. Pitney Bowes, SAS, S&P Global, UPS. *Education/Skills Focus*: Increase early college and two- and four-year pathways to develop the region's workforce in technological fields including data science, cybersecurity, and cloud technology. The group will identify key workforce competencies needed for the Greater NYC region, and will engage with education partners to map those needs against existing educational offerings to determine how companies can support solutions for stronger curricular alignment and expanded student learning opportunities.
- Palo Alto, CA—West Region: *Lead Company*: SAP SE. *Supporting Partners*: AT&T, Ernst & Young, IBM Corporation. *Education/Skills Focus*: Work with higher education institutions to develop work-based learning pathways, focused on increasing the number and diversity of undergraduate students with digital technology skills. A key goal is to create a talent pipeline that can be replicated to address company workforce needs in other regions.
- Raleigh-Durham, NC—Mid-Atlantic Region: *Lead Company*: Ernst & Young. *Supporting Partners*: Bank of America, IBM, SAS, Wells Fargo & Company. *Education/Skills Focus*: Work with employers, their existing higher education partners, and/or technology platform companies to create new or non-traditional undergraduate pathways and upskill the existing workforce in digital fields such as artificial intelligence, data science, and design thinking. Companies are adapting the Generalist digital technology competency map developed by the D.C./Maryland/Virginia region to create a competency map relevant to every digital professional. Companies would like North Carolina higher education institutions to integrate these competencies into

a credential which could be offered to students. As part of the partnership model, companies would offer students who gain this credential unique opportunities for internships, job interviews, or hiring.

- **Salt Lake City, UT—West Region:** *Lead Companies:* The Boeing Company, Northrup Grumman. *Education/Skills Focus:* Expand apprenticeships leading to certification to meet the region’s aviation manufacturing needs and increase the number of workers graduating with aerospace, mechanical, and electrical engineering degrees. This will involve increasing from 40 apprenticeships for aerospace manufacturing jobs and increasing baccalaureate-level engineering jobs to support plans of regional employers to hire additional engineers.
- **South Carolina—Southeast Region:** *Lead Company:* Siemens Energy. *Supporting Partners:* Altec Industries, Inc., Day and Zimmermann, Owens Corning, Tyson Foods, Inc. *Education/Skills Focus:* Replicate and expand Siemens’ existing apprenticeship program in advanced manufacturing to create a new apprenticeship model in the Southeast that increases participation among Business Roundtable member companies with similar workforce needs for quality talent in the manufacturing industry.

## Advance Navigation Tools, Verifications, Quality Assurance

### Google Education and Pathways Search

In 2017, Google launched a job search experience so more people can find jobs that meet their needs: when someone searches for jobs on Google, they are shown not only jobs available right now in their area but also information about effective local training and education programs. Since launch Google has improved and expanded the experience by helping connect over 100 million people in 92 countries to job listings, and working to bring this feature to more countries. This work includes focusing on individual communities such as helping the U.S. military service members to transition to civilian jobs with job search for veterans, a tool for service members to easily find civilian jobs that use the skills and experience they developed in their military roles. Search is also focused on helping bridge the skillsgap by connecting job seekers with effective, nearby job training programs delivering the skills that local employers need. Two key pilots are underway:

- Pathways in Virginia, partnering with leading organizations in this ecosystem including the State of Virginia, the Virginia Community College System, local employers, and many others to make these local programs more discoverable through Search.
- Goodwill, the leading non-profit job training provider in the U.S., is using volunteer Google engineers to work with local Goodwill organizations to ensure their education and training programs are easily found on the open web.

### Learner Records

The American Association of Collegiate Registrars and Admissions Offices and the Association of Student Affairs Professionals partnered on a national pilot project between 2015-2017 to develop models for a more comprehensive student record. After the success of the pilot, the associations moved to the second stage of this work on the development and adoption of Comprehensive Learner Records in American higher education. This work has focused on the development and implementation of a single learner record across a broad number of American colleges and universities. The Comprehensive Learner records seek to capture, record, and communicate learning when and where it happens in a student’s college experience. This includes learning outcomes from courses, programs, and degrees, as well as experience outside the classroom. There are several emerging technologies that have demonstrated their ability to show the institution’s learning framework and some of these also provide a deeper exploration of the information and evidence of what that learning means or how it was attained and validated.

As Phase II of the project progresses, it is focused on scaling up the adoption of CLRs among colleges and universities, the content of competency-based transcripts/records, the integration and use of data to create CLRs, and track student progress toward competencies and learning outcomes. The scaling is being done by working with higher education systems and networks, as well as workshops for single institutions interested in creating and implementing a CLR. Working with C-BEN and IMS Global, the content of CBE transcripts/records is being standardized and socialized among those institutions who offer CBE courses and programs. Data integration work has already produced a white paper that delineates the challenges and potential solutions. Degree audit system processes are being documented to provide resources for institutions seeking to track student progress toward learning outcomes/competencies.

## **The Quality Assurance Commons**

The Quality Assurance Commons for Higher and Postsecondary Education is a nonprofit organization established in 2016 to create a new voluntary approach to assure that higher and postsecondary programs of all types and across all disciplines graduate students who are well prepared for employability in the 21st century. Based on a successful co-design pilot project in partnership with 27 academic programs from 14 institutions across the country, the Essential Employability Qualities Certification (EEQ CERT) certifies bachelors, associates, and certificate programs that prepare graduates with the essential employability qualities and that meet other criteria including verifiable student records that display EEQ competencies, effective career services, employer engagement in program design and quality, student and alumni feedback and engagement, and publicly available program information and student outcomes. The new initiative is scaling up to more than 100 programs between 2018-2020. The EEQs include people skills such as collaboration, teamwork, and cultural competence; problem-solving abilities such as inquiry, critical thinking, and creativity; and professional strengths such as communication, work ethic, and technological agility. The EEQs represent the knowledge, skills, abilities, and experiences that help graduates be ready not only for their first job, but also a lifetime of engaging employment and participation in the rapidly changing workforce of the 21st century. The EEQs represent current and future employer expectations as reflected in numerous studies, such as those completed by LinkedIn, ACT, the Foresight Alliance, Jobs for the Future, Career Tech, the Business Roundtable, O\*NET, third way, National Network of Business and Industry Associations, and the Institute for the Future.

## **Expand Messaging around Credential Transparency**

### **Credential Engine: Inventory and Mapping of All Credentials in U.S.**

The project is providing Credential Engine with an estimated count of credential-granting programs in the U.S., by type of credential, including degrees, certificates, microcredentials, industry-recognized certifications, apprenticeships, licenses, badges, and secondary school diplomas. A preliminary report, "Counting U.S. Secondary and Postsecondary Credentials" was prepared for Credential Engine by the Center for Regional Economic Competitiveness (CREC) in April 2018 and identified at least 334,114 credentials in the U.S. across eight categories. CREC then conducted a more comprehensive, in-depth analysis which estimates 738,428 credentials across 14 categories, grouped by four types of organizations: postsecondary education institutions (370,020 credentials); MOOC providers (7,132); non-academic organizations (315,067, including licenses, industry-recognized certifications, apprenticeships, coding bootcamps, online course completion certificates, and digital badges); and secondary school diplomas (46,209). Credential Engine plans to continue this research on a periodic basis to follow developments in the rapidly growing credentialing marketplace.

### **Gallup Surveys**

Gallup has had a number of conversations with leading organizations who have expressed interest and urgency in better understanding the U.S. jobs landscape. In particular, Omidyar Network and Lumina Foundation have been exploring the idea of a pilot survey to unearth a deeper, more qualitative understanding of jobs and how work is evolving. Following conversations between Gallup and Omidyar Network and Lumina Foundation, these organizations agreed to pursue a demonstration study as a showcase of the kinds of information leaders could get from such an initiative if it were taken to scale in the future. The project will serve as a way to further refine the questions and research from Gallup's initial "Phase 0" study conducted in November 2017 from the Gallup Panel. And it will pave the way for a validated instrument that could be launched as a long-term, large-scale initiative such as the envisioned Center for Great Jobs. The intent is that findings of this demonstration study will be widely reported in the news and throughout thought leadership circles. The pilot study involves an address-based (ABS), mailed and mail-to-web survey methodology. Mailed survey response rates are now – by far – the highest response rates of any mode at 23%, beating phone at 8% and web at 2%, on average. Increasingly, the top methodologists are recommending mail and mail-to-web recruit as the best process for capturing an accurate representation of the U.S. general population – and especially so for reaching hard-to-reach populations such as the working poor and underrepresented minorities. Most government studies, for example, have shifted to mail-based studies the past couple of years. The study aims to get 10,000 completed responses, which will enable reporting by key demographics across age, race, region, and industry - including key break-outs such as rural and working poor. In order to get a final N of 10,000 completes, Gallup is sending a total of 66,700 mailed survey packets with an estimated 15% response rate. Each packet will include a cover letter, 8-page survey packet in English and Spanish (approximately 60 questions total), and \$1 incentive. It will also include a code for completing the survey via web for respondents to prefer to complete it that way. Three weeks after the initial mailing,

Gallup will send a postcard reminder to those who have not yet completed the survey to boost response rates. The questionnaire will go through cognitive interviewing to ensure respondents understand and can appropriately answer the proposed questions. Gallup will conduct full analysis on the dataset and produce top-line findings to review with Omidyar Network, Lumina Foundation and other sponsors. Gallup will then produce a full report on key findings intended for public release. This report will be released along with an event held in Gallup's Washington D.C. headquarters. Gallup and the underwriting sponsors will also coordinate a full public relations and media outreach campaign to maximize coverage of the findings, providing ample time for embargoed reports and pre-release pitches to journalists and media outlets. Assuming the demonstration study is successful in terms of the positive responses from media coverage, policy-makers, higher education leaders, business leaders and top labor market experts, Gallup intends to further its efforts to establish a large-scale, on-going center for labor statistics that would provide this information on a consistent basis going forward – including down to a zip code level of analysis.

### **Messaging through Media**

A number of media-focused efforts are underway to educate the public and niche audiences about credential transparency and the evolving future of work and learning marketplace. Examples include:

- Poynter Institute — journalism training on equity gaps in higher education and future of work
- WorkingNation — storytelling around post-high school education/training as lifelong antidote in context of changing nature of work
- Roadtrip Nation — changing nature of work and what kinds of education beyond high school can help prepare them for jobs and additional education
- The Atlantic — digital reporting series that explores how to prepare people for future of work and related live event on The Future of Work
- PBS NewsHour — education segments twice a year covering adults' pursuit of initial credentials

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