



Building a More Inclusive Talent Marketplace:

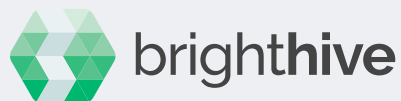
Increasing Opportunity
Through Community and
Business-Led Initiatives

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U.S. CHAMBER OF COMMERCE FOUNDATION

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U.S. CHAMBER OF COMMERCE FOUNDATION

The U.S. Chamber of Commerce Foundation is dedicated to strengthening America's long-term competitiveness. We educate the public on the conditions necessary for business and communities to thrive, how business positively impacts communities, and emerging issues and creative solutions that will shape the future.

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Introduction

The U.S. Chamber of Commerce Foundation (Chamber Foundation) is dedicated to strengthening America's long-term competitiveness. This effort includes educating the public on the conditions necessary for businesses and communities to thrive while highlighting emerging issues and creative solutions that will shape the future. The Chamber Foundation's relevant initiatives covered in this report include Talent Pipeline Management, Job Data Exchange, and the T3 Innovation Network, which includes learning and employment records. These innovations provide tools, resources, and communities of practice to improve communication and alignment of in-demand skills with the needs of stakeholders in an evolving talent marketplace: learners and workers; employers; and education, training, and credentialing providers. This report addresses the potential roles of these initiatives in supporting opportunity populations and the workforce organizations that serve them. Based on interviews with organizations that serve opportunity populations, this report provides guidance to help stakeholders and communities understand emerging technologies that can support individuals in navigating the labor market. Recommendations are intended to promote useful technologies, processes, partnerships, and governance strategies without constructing or perpetuating barriers to opportunity.

"Opportunity populations" refers to people who have had limited access to educational and professional opportunities and who face barriers to employment and career advancement. They may include, but are not limited to, the following:

- Opportunity youth (young adults ages 17 to 24 who are out of school or out of work)
- Members of the LGBTQ community
- Members of immigrant or refugee populations
- Formerly incarcerated individuals
- Members of indigenous communities
- People with disabilities (physical and/or cognitive)
- People without a high school diploma
- People with limited English proficiency
- People who are (or who have been) homeless

It is also important to note that these individuals often experience barriers due to identities that exist at the intersection of these characteristics.

The COVID-19 pandemic has put the reality of structural intersectionality (i.e., how the combination of a person's or group's social identities or categorizations create overlaps and interconnections in discrimination and privilege) into stark relief. For example, because of their over-representation in service hospitality jobs, Hispanic women have experienced a 21% decline in employment—the most acute job loss recorded of any demographic group during the pandemic.¹ Understanding the roadblocks that limit the recovery prospects of one of these women requires attention to the individual barriers she may be facing (e.g., a woman, Hispanic, a parent). To cultivate equity in a workforce context, employers, training providers, and job seekers will need tools and pro-equity strategies that explicitly consider the intersectionality of inequality to effectively frame the employment experiences of marginalized groups.

1 Rackesh Kochar, "Hispanic Women, Immigrants, Young Adults, Those With Less Education Hit Hardest by COVID-19 Job Losses," Pew Research Center, 2020, <https://www.pewresearch.org/fact-tank/2020/06/09/hispanic-women-immigrants-young-adults-those-with-less-education-hit-hardest-by-covid-19-job-losses/>.

The vision for this report is rooted in the belief that hiring could be less biased and more inclusive if we succeed in orienting hiring practices around skills instead of proxies or pedigrees. To meaningfully alter hiring practices, stakeholders must commit to cultural and practical shifts that reorient the workforce ecosystem toward a more holistic understanding of opportunity seekers' unique barriers and strengths, competency-based hiring, and incremental changes undertaken by all stakeholders. The Chamber Foundation's portfolio of workforce initiatives and tools shows promise for facilitating, economizing, and scaling skills-based hiring. These initiatives can provoke meaningful conversations about change; however, their power to effect change will be proportional to the amount of effort from the workforce ecosystem and the quality and governance of the data these initiatives use.

Many employers have already formally adopted policies and practices around diversity, equity, and inclusion (DEI). We know that many consumers, especially in younger generations, expect the companies from which they purchase goods and services to align with their values, often including DEI.² However, it is important to ensure that these initiatives are not merely superficial but instead deliberate and broad-based. According to Accenture, C-suite executives often think that their companies are more inclusive than their employees do; if this "perception gap" were narrowed by 50%, they estimate increased profitability of \$3.7 trillion per year, in 2019 dollars.³ Growing access to economic opportunities for individuals who face disproportionate employment barriers is essential for an inclusive and robust labor market where both businesses and individuals can thrive. Building an inclusive workforce will require not only statements and commitments to diversity but also systematic attention to the hiring practices that are required to build and maintain a diverse workforce. Success will require employers and other stakeholders to recognize the complexity of structural disadvantage.

For individuals who face high barriers to work, introducing new ways to communicate qualifications can potentially improve their job search, application, screening, selection, upskilling, and reskilling processes. For employers, the ability to use talent data to inform hiring decisions can scale and transform recruitment and potentially improve job-worker fit. For education, training, and credentialing providers, the ability to outline programs based on the skills that curricula develop can enable instructors to better equip students for career and advancement opportunities. These outcomes are heavily reliant on stakeholders working together and consciously examining existing practices. This report will consider barriers to education and work faced by opportunity populations, discuss the role of technology, and examine if the following tools, initiatives, and resources from the Chamber Foundation could contribute to shifting access to mobility.

Talent Pipeline Management (TPM)[®] is a demand-driven, employer-led approach to close the skills gap, born from the realization that the demands of today's economy require strategic alignment between classroom and career. TPM builds talent supply chains aligned with dynamic business needs by allowing employers to play an expanded leadership role as "end-customers" of education and training systems. TPM is used by thousands of employers in 33 states, the District of Columbia, and Canada. TPM continues to expand and grow; the updated curriculum now includes upskilling and guidance for employers working with opportunity populations. Additionally, TPM plans to integrate Job Data Exchange into its suite of tools and resources.

2 Ellyn Shook and Julia Sweet, "The Hidden Value of Culture Makers," Accenture, 2020, https://www.accenture.com/ie-en/about/inclusion-diversity/culture-equality-research?c=acn_glb_cultureequalityvanityurl-accen_11147128&n=otc_0220.

3 Shook and Sweet, "The Hidden Value of Culture Makers."

Job Data Exchange (JDX)[™] encompasses a set of tools and resources for job description and posting creation and modification that walks employers through a set of fields they can complete (using an open data standard, JDX JobSchema+⁴) to help break down a job description into specific skill and hiring requirements. Several major human resource information system (HRIS)/applicant tracking system (ATS) vendors are interested in hosting this workflow on their systems, which can be augmented with artificial intelligence (AI) recommendations to help employers complete the fields. A set of fields has been prototyped with employers and shows promise for increasing the amount and quality of information included in job descriptions and postings.

The T3 Innovation Network is composed of more than 500 public and private stakeholders working to support the digital transformation of the talent marketplace, where (1) all learning counts, (2) competencies and skills are the new currency, and (3) learners and workers are empowered with their data. Many of the technologies, tools, and resources discussed in this report are products of the T3 Innovation Network.⁵ As the T3 Network is working to build an open, public-private data and technology infrastructure, the network is ideally positioned to support the scalable pilot testing of learning and employment records (LERs) to better align education, workforce, and credentialing data with the needs of the new economy. LERs are a type of digital record of learning and work that can be grouped together with other LERs to describe an individual’s qualifications as they pursue education and employment opportunities. An LER can document learning wherever it occurs, including in the workplace or through education experiences, volunteering, credentialing, military training, or employment history. LERs are similar to electronic health records (EHRs) and have the potential to improve education and hiring outcomes much like EHRs have improved healthcare delivery. What makes LERs unique from other student, employee, or applicant record systems is their ability to be fully transferable and recognized across student information, learning management, employer human resource departments, and military systems. They also operate on the principle that the individual is the owner of his or her own data. LERs go by many names and are also referred to as interoperable learning records. The LER Resource Hub⁶ was launched in July 2020 to promote a community for learning and sharing best practices and resources to support pilot teams testing the LER concept.

4 See draft [schema](#).

5 U.S. Chamber of Commerce Foundation, “The T3 Innovation Network,” <https://www.uschamberfoundation.org/t3-innovation>.

6 T3 Innovation Network, “LER Hub,” <https://lerhub.org>.

Part 1: Barriers in the Labor Market

The U.S. was facing a skills gap even before the coronavirus pandemic shook the labor market. Employers had trouble hiring qualified candidates for open positions: 74% of survey respondents in the Chamber Foundation’s “Hiring in the Modern Talent Marketplace” report agreed that a skills gap persists in the U.S., with more than half responding that the search to find qualified talent had become more difficult over the past three years.⁷ Since the spring of 2020, COVID-19 has only exacerbated these challenges.

Confusion for the job seeker exists at every level of the current labor market. Job seekers struggle to understand job requirements. Employers struggle to find the right candidates even with an abundance of applicants. Education, training, and credentialing providers struggle to align curricula, credentials, and career services with the needs of an ever-changing workforce. Workforce organizations lack the data necessary to guide workers toward retraining that will lead to new employment opportunities. In today’s dynamic labor market, “reskilling” or “upskilling” can be critical for reemployment and to advance or transition workers to positions that provide family-sustaining wages. These issues are facets of an emerging picture of lifelong learning, in which the model of receiving education in youth without obtaining additional education may no longer be sustainable. Globalization, automation, degree requirements, and other factors can complicate access to hiring funnels in the first place—and individuals facing barriers to work tend to be the most impacted by these disconnects across education and workforce systems.

Systemic barriers to education and work are present in, but not limited to, hiring practices, career and educational advising, and access to and use of technology. Fundamental access issues to resources and education undergird these barriers, and all can be compounded by a lack of attention to users’ needs when designing systems (i.e., human-centered design) and the under-representation of workers and learners in the decisions that profoundly affect them.

Barrier 1: Hiring practices may inadvertently filter out or discourage opportunity populations

Modern hiring practices, although often tech-enabled, use only a small segment of information relevant to finding the right applicant for a job, particularly in the initial stages of applicant filtering. Resumes, transcripts, and rigid online forms merely tell part of the story, leaving out valuable information about skill levels and unique experiences and making it difficult to compare applications. Additionally, job seekers are on average not well trained in describing their qualifications to employers, either on paper or in an interview.

As a result, workforce and education stakeholders often use proxies or substitutes to assess skill level. One common metric is a degree requirement—a condition that disproportionately harms members of opportunity populations. Opportunity@Work’s research on individuals who are “skilled through alternative routes” found that employers’ exclusion of applicants without a four-year degree translates to the exclusion of 68% of black applicants, 79% of Latinx applicants, and 73% of rural applicants.⁸ Their research also found that, while military veterans learn a variety of key skills during their years of service, two-thirds of U.S. veterans lack a four-year degree.

Degree inflation is an example of over-reliance on proxies that hurt workers and the economy at large. According to a Harvard Business School study, during the slow Great Recession recovery, when applicants were more willing to apply to jobs for which they were overqualified, employers turned to degree credential requirements for millions

7 U.S. Chamber of Commerce Foundation, “Hiring in the Modern Talent Marketplace,” U.S. Chamber of Commerce, February 4, 2020, <https://www.uschamberfoundation.org/reports/hiring-modern-talent-marketplace>.

8 Opportunity@Work, “STARs: Skilled Through Alternative Routes,” <https://opportunityatwork.org/stars/>.

of positions even when jobs required only middle-skill competencies.⁹ This strategy proved to be more expensive than hiring non-degree-holders with relevant experience and resulted in no “material improvement in productivity.”¹⁰ In addition to hurting economic competitiveness, this practice can lead to job market disconnects that place opportunity populations, especially those without degrees, at a disadvantage and diminishes their access to employment. The Local and Regional Government Alliance on Race & Equity (GARE) calls out these superficially race-neutral practices as culpable in perpetuating racial inequities. GARE notes:

[M]inimum qualifications that emphasize educational requirements over experience will inadvertently perpetuate racial inequities since a larger percent of white people have more education. A careful analysis of job requirements to ensure the educational requirements are appropriate for the job, and for some classifications, allowing experience to substitute for formal education, will prevent the perpetuation of that inequity.¹¹

In addition, when job postings share minimal or vague information about the opportunity, job seekers cannot make effective triage decisions between which jobs to apply to, creating a disconnect that wastes time for both the applicant and the employer. This can be particularly wasteful for opportunity populations, who have more constraints over where they are able to work and under what conditions (e.g., predictable shift scheduling). In some cases, the job seekers won’t apply to an eligible position and in other cases they will be rejected where a good fit might have been possible.

Barrier 2: Career and educational advising for opportunity populations is under-resourced

Advising should be available to learners and workers throughout their education and career. Yet the advantages of one-on-one advising are hard to scale, labor market information changes rapidly, and counseling is often under-resourced (high schools may have just one counselor for large populations). While opportunity populations often need more support than the average student or job seeker, they have much less access to professional and informal advising. Interviewees whose organizations support students, foster youth, immigrants, formerly incarcerated individuals, and others described how case management services can be overwhelmed by the administrative lift and personalization needed to support opportunity seekers. The nature of this work is frequently manual and time intensive for opportunity populations and the organizations supporting them—particularly when relocation of individuals is frequent, and organizations may not have access to records of wraparound support providers or government agencies serving the same clients.

The complexity of such work is made more difficult by the fact that workforce intermediaries and advisors often lack analyses of performance outcomes—such as credential or program completion rates, employment rates, average wages post-program completion, and measures of well-being—to draw on during counseling. Furthermore, when this information is available, the data are often not broken down demographically. Positive aggregate outcomes can conceal the real story when there is a disproportionate share of poor outcomes from minority groups. Those interested in determining the effectiveness of a program or practice based on short- or long-term outcomes are often limited to conducting surveys, which may not be representative of the typical user. Longitudinal studies, which would allow outcomes to be measured over time, are blocked by disconnected and inaccessible data. Inadequate

9 Joseph B. Fuller and Manjari Raman, “Dismissed by Degrees: How Degree Inflation Is Undermining U.S. Competitiveness and Hurting America’s Middle Class,” Harvard Business School, October 2017, <https://www.hbs.edu/managing-the-future-of-work/Documents/dismissed-by-degrees.pdf>.

10 Fuller and Raman, “Dismissed by Degrees.”

11 Julie Nelson and Syreeta Tyrell, “Public Sector Jobs: Opportunities for Advancing Racial Equity,” Local and Regional Government Alliance on Race & Equity, February 2015, <https://racialequityalliance.org/wp-content/uploads/2015/02/Public-Sector-Jobs-Final1.pdf>.

data governance, low data literacy, uncertainty about data security and liability issues, challenges in record linkage (e.g., linking individual-level data across multiple datasets), and other barriers also contribute to siloed data that could be responsibly combined for public benefit.

Barrier 3: Technology is a double-edged sword

Leveraging new technologies to support job seekers and employers must come with awareness of the shortcomings of these systems, the biases they perpetuate, and the work needed to mitigate some of their negative effects. Many employers already deploy technologies such as resume screening software, applicant screening algorithms, and computer-led interviews. But some of these technologies create new problems even as they solve others. For instance, Amazon scrapped its applicant selection AI when it was discovered that the software had replicated existing gender biases in the data used to train it.¹² Resume screening software is now ubiquitous, but it's created a world in which applicants are forced to tweak their resumes to "beat the bot" and reach a human recruiter, which means ensuring their resume formatting is software readable and full of terms that match those in the job posting. For many applicants, technology has introduced new barriers instead of eliminating existing ones.

The inherent complexities of technology bring new considerations to light in terms of equity. According to one interviewee, workforce processes have historically been more art than science and possess well-documented inefficiencies. As processes evolve under the merits of modern science and technology, there are new risks to consider: failing to assume a human-centered, empathic, and culturally sensitive approach can result in underutilization, differential access, and the exacerbation of existing inequalities.

Marginalized groups are rarely the first to benefit from new technologies and can all too often be disadvantaged further by them in complex ways. They can face significant, ongoing obstacles to internet access¹³ and the digital literacy necessary to obtain the benefits of innovations. For example, the advent of online job search technologies has reduced job search friction between employers and job seekers—but not evenly throughout populations. Education level is one such marker: according to a 2015 Pew study, job seekers with only a high school diploma are far more likely than college graduates to rely on smartphones to search job postings and submit applications. Notably, these job seekers encountered significant difficulties navigating the digital job market: 47% reported challenges using the digital job search tasks.¹⁴ Pew's results show evidence of an emergent phenomenon of accumulated advantage—job seekers with the lowest levels of education and higher unemployment rates were less able to capitalize on the online job search process than college-educated job seekers.¹⁵ Without equity-enabling technologies and inclusive human-centered design, the digital labor market will continue to be fraught with both old and new barriers for opportunity populations.

12 Jeffrey Dastin, "Amazon Scraps Secret AI Recruiting Tool That Showed Bias Against Women," Reuters, October 9, 2018, <https://www.reuters.com/article/us-amazon-com-jobs-automation-insight/amazon-scraps-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G>.

13 David McCabe, "Poor Americans Face Hurdles in Getting Promised Internet," *The New York Times*, May 20, 2020, <https://www.nytimes.com/2020/05/20/technology/coronavirus-broadband-discounts.html>.

14 Aaron Smith, "Searching for Work in the Digital Era," Pew Research Center, November 2015, <https://www.pewresearch.org/internet/2015/11/19/1-the-internet-and-job-seeking/>.

15 Smith, "Searching for Work."

More research is needed regarding the ethics of using AI with workforce data. While AI could further exacerbate inequities in today's labor market, it could also be used to reduce administrative work and improve search, discovery, and the matching of individuals to new and better opportunities (i.e., career paths that result in economic mobility). These developments could potentially improve inclusion, diversity, equity, economic and educational outcomes, and well-being.

Compounding Factor: Learners' and workers' voices are under-represented in the development of new workforce technologies

Learners and workers should be an integral part of the process when implementing new workforce technologies. Job seekers, students, and members of opportunity populations are not simply stakeholders or beneficiaries; they are partners in the process. The key to successful deployment of the processes described in this report is to consult users every step of the way. Organizations supporting opportunity populations, such as those interviewed for this report, can act as intermediaries to promote equitable use of emerging workforce technologies. These organizations' deep experience navigating the labor market for their beneficiaries should be amplified and integrated into the design process of new workforce technologies. These organizations can play a key role in the design of workforce technologies to safeguard against populations being differentially affected by innovations.

As more individual data accumulate in systems intended to help people, the potential for both positive and negative uses of these data increases. In a world where the misuse, unauthorized reuse, and abuse of data is rampant, proponents of new technologies and advocates for opportunity populations are faced with important questions: How can we learn from workers and learners to empower them to consent to or decline reuse of their data? How can we ensure individuals have a sense of ownership and agency over their data? At the same time, developers of new technologies are working to improve skill signaling to facilitate the ethical collection, use, and analysis of individual-level data and to build tools and platforms that will meet labor market needs. Organizations that seek to adopt these technologies face their own questions: How do we ensure that new technologies are usable by their intended beneficiaries? How do we forestall the possibility that new technologies will create new problems?

Part 2: Labor Market Design for Opportunity Populations

An inclusive workforce is not an inevitable outcome—employers, educators, learners, workers, and their representatives must identify effective, scalable solutions that close gaps and drive inclusionary employment outcomes for marginalized groups. The Center for American Progress calls for a new workforce system imbued with equity-enhancing features that ensure that workers’ skills, talents, and knowledge legacies are adequately valued.¹⁶ As the center explains, “to create a more equitable workforce, policymakers must boldly shift away from presumptions based on the skills narrative to facilitate conditions in which employment risks and insecurities generated during economic change are shared equitably by everyone who has a stake in the economy.”¹⁷

Promoting an inclusive workforce framework requires equity-conscious solutions that institutionalize access to employment, particularly for opportunity populations. While technology is not a panacea, it can partially cultivate an environment that dismantles barriers and fosters inclusion. A reversal of structurally discriminatory practices requires systemic pro-equity solutions that are intentional in reducing the human bias of outcomes.

Human-centered design “...offers problem solvers of any stripe a chance to design with communities, to deeply understand the people they’re looking to serve, to dream up scores of ideas, and to create innovative new solutions rooted in people’s actual needs.”¹⁸ A lack of human-centered design in the labor market results in impersonal, ineffective, and sometimes nonsensical processes. A poorly designed process places the burden of navigation on the user, a burden that disadvantaged populations are often less able to circumvent. For example, users often bear the brunt of job application processes in the form of lost time and inequitable outcomes (for job seekers) or lack of recognition for academic credits and prior learning (for students and credential holders). These are processes that combine services, products, and technologies, which requires users to navigate through countless different interfaces, authentication systems, profile builders, and application submission formats with varying degrees of complexity. Human-centered design can consider users with limited digital literacy and/or limited access to the internet. The EdTech Center at World Education recommends human-centered design from their field testing on employment technology tools. They learned that processes should be easy to start, interfaces simple, content media-rich and immediately relevant, and access mobile-friendly with supplementary human touchpoints.¹⁹ These can also be great principles of design for all users.

This report builds on focal areas identified in the Chamber Foundation’s Workforce Landscape Analysis,²⁰ which include the following:

- *Navigating Credentials and Opportunities*: Creating better data and tools for opportunity seekers to understand the workforce value of specific skills and credentials
- *Communicating and Authenticating Skills*: Enabling opportunity seekers to share what they know and can do—more clearly and in a way that employers recognize and trust

16 Livia Lam, “A Design for Workforce Equity. Workforce Redesign for Quality Training and Employment: A Framing Paper,” Center for American Progress, October 2019, <https://www.americanprogress.org/issues/economy/reports/2019/10/16/475875/design-workforce-equity/>.

17 Lam, “A Design for Workforce Equity.”

18 IDEO, “The Field Guide to Human-Centered Design,” 2015, https://d1r3w4d5z5a88i.cloudfront.net/assets/guide/Field%20Guide%20to%20Human-Centered%20Design_IDEOorg_English-0f60d33bce6b870e7d80f9cc1642c8e7.pdf.

19 The EdTech Center at World Education Inc., “Leveraging Technology to Increase Opportunity and Economic Security for Adults: Field Testing Tools that Break Barriers to Learning and Employment,” March 2019, <https://edtech.worlded.org/ttale-report/>.

20 White Board Advisors and U.S. Chamber of Commerce Foundation, “Landscape Analysis,” February 2020, https://www.uschamberfoundation.org/sites/default/files/2020_WorkforceLandscapeAnalysis_FINAL_5.3.20.pdf.

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- *Communicating Skill Needs*: Helping employers identify, describe, and share discrete competencies required for open roles within their organization
 - *Understanding Skills That Matter*: Creating processes for employers to understand what skills matter for roles in their organization and to communicate where gaps exist
 - *Improving or Creating Technical Infrastructure*: Developing the shared standards and technical infrastructure to facilitate communication

This report also expands into the following topics:

- *Building Partnerships with Organizations Supporting Individuals*: More effectively supporting career and educational advisors and community-based organizations
- *Designing Equity-Conscious Systems*: Engaging in better, more intentional use of systems, services, governance, and technology

When implementing the workforce focal points outlined above, it is important to incorporate human-centered design processes to test concepts and implementation. Use cases offer a starting point for designing for effective human–system interaction. Use cases are descriptions of how users can interact with a technology or system. Each of the following use cases presents an example of a need faced by a specific category of users along with the potential application of a technology, process, or system. The success criteria should orient the development of the systems around the intended outcomes for the users and prioritize inclusivity. The use cases below emerged from our interviews with organizations serving opportunity populations.

Additionally, later in this report, we present a hypothetical opportunity population user story of a 20-year-old restaurant server named Olivia to show how the use cases below may play out in the real world for an opportunity seeker.

Employers Can Better Signal Requirements to Educators, Individuals, and Workforce Intermediaries

Use cases 1 and 2 are primarily explorations of approaches for barrier 1: hiring practices often inadvertently filter out or discourage opportunity populations. These use cases target improving the communication from employers to learners, workers, and other stakeholders through documentation and refining the requirements that employers list. The use cases are immediately actionable by employers that wish to evaluate and experiment with their job postings. The TPM curriculum mentioned is available now, and JDX resources are becoming increasingly available. The use cases do not address other aspects of hiring practices, such as interviews and candidate selection, which can also create barriers to work. Opportunity populations also face barriers to staying employed once they have a job; these barriers are also out of the scope of these use cases, but important to keep in mind for a holistic design.

Use Case 1: Employers provide crucial information about opportunities to improve applicant self-selection

Problem: Job postings often lack important information that job seekers and their advisors need to understand which open jobs are a good fit for them and worth applying to.

Example Pain Points:

- Job applicants lack key information about open jobs that limits their ability to determine which jobs are worth the time and effort to apply to.
- Requirements to work without a predictable schedule, work remotely, or navigate to multiple work locations are all factors that may be categorically prohibitive to job seekers but may not be described in a job posting.
- Opportunity populations, particularly those experiencing economic insecurity, face a litany of competing priorities and barriers: these include childcare or care of dependents; language barriers; housing insecurity; second and third jobs; and limited access to the internet, technology, and transportation.

How Can Technology Play a Role? Open data standards for providing this information can make it easier for employers to provide clearer information on what a job may entail and easier for job seekers to search, filter, and interpret job information. Structuring job postings using a standard schema can increase the employer's ability to signal to job applicants and enable job applicants to better understand information about open jobs.

Recommendations: The JDX JobSchema+ provides an open data standard for describing jobs on the open web and in a machine-actionable format. Workforce stakeholders can encourage employers to implement JDX tools and resources into their hiring processes as well as provide feedback and guidance on the data elements that should be considered for opportunity populations.

Success Criteria:

- Job postings using structured data contain demonstrably more specific information than unstructured job postings.
- Structured job postings perform better in user testing.
- Employers take advantage of structured frameworks to provide “nontraditional” information, such as the frequency of overtime shifts or job location proximity to public transportation.
- Applicants have access to software and support that enable them to fully engage with the improved data.

What Long-Term Success Could Look Like:

- **For Employers:** Improved efficiency of hiring selection, increased employee retention, and improved employer performance on DEI measures
- **For Learners and Workers:** Improved self-reported worker satisfaction and increased information on open jobs to drive decision making around which positions are a strong fit
- **For Talent Sourcing Providers/Workforce Intermediaries:** Clearer, stronger demand-side signals that provide educators the information they need to invest in specific training and align curricula to the workforce

Use Case 2: Employers are able to “right-size” their requirements to improve the hiring process

Problem: Job posting requirements can often be unintentionally imprecise, inflated (e.g., preferences presented as requirements), or inaccurate, which sends poor signals to prospective employees and may lead to hiring inefficiencies and disparate impact.

Example Pain Points:

- Job seekers spend hours applying to hundreds of vague positions with poor ability to match their skills to jobs and compare skill requirements across jobs. This can sometimes result in application burnout.
- Inflated requirements implicitly advantage more privileged applicants. For example, most women will avoid applying to jobs for which they do not meet all of the requirements, while men tend to apply even if they meet a certain fraction of the requirements.²¹ In other cases, individuals who meet the skill requirements to do the job may not apply because of a degree requirement.
- Imprecise requirements can result in new hires who might be a bad fit, leading to expensive turnover costs. Once candidates are in the door, getting a new hire to full productivity can threaten productivity and efficiency. Over half (53%) of employers surveyed by the Chamber Foundation reported this as a pain point.²²
- Employers may use proxy requirements as a way of dealing with uncertainty about qualifications. For example, employers looking for applicants with strong interpersonal skills may use degrees as a proxy for soft skills. This excludes many retail, food service, and hospitality workers—the workers worst hit by COVID-19 unemployment—who can supply strong experience-based interpersonal skills.

How Can Technology Play a Role? Structured job postings can aid employers in accurately communicating the skills and competencies needed to be successful within a specific role, which assists the job seeker in assessing fit and helps workforce organizations identify training that will equip workers with the required skills to fill specific roles. Effectively communicating to talent providers what specific roles entail, including the unique sets of skills and experiences, is essential to building a strong talent pipeline. Partnerships with workforce organizations and talent providers will be needed to help employers craft job descriptions that express requirements in clear and structured ways. From an equity standpoint, employers also need to be aware that skills-based hiring will not eliminate bias, which can still exist in their choice of requirements, and manifest in any stage of the hiring process.

Recommendations: The Chamber Foundation’s TPM curriculum is a step-by-step process employers can move through collaboratively to determine their sources of talent and hiring or upskilling needs and enable collective action for skills-based hiring or training. The TPM curriculum also includes guidance for employers working with opportunity populations. Another approach is the common human resources (HR) practice of job analysis and verification. As a complement to such strategies, data standards, such as JDX JobSchema+, can enable employers to articulate and aggregate regional skill demand and provide employers with a path to precision in job listings.

Success Criteria:

- Employers take time to determine specific competencies needed for each position instead of implementing a new proxy that may be ineffective (i.e., using blanket formulas to create an artificially high experience requirement in place of a bachelor’s degree).
- Employers and community-based organizations create formal partnerships devoted to facilitating competency-based hiring.
- Developers of software use structured competency data in their work and conduct user research with workers and learners (i.e., human-centered design).

What Long-Term Success Could Look Like:

- **For Employers:** More qualified applicants, reduced time to hire, increased employee satisfaction, and improved employer performance on DEI
- **For Learners and Workers:** Reduced time to find a position for job applicants, particularly members of opportunity populations
- **For Talent Sourcing Providers/Workforce Intermediaries:** Better ability to understand labor market demand patterns, particularly when using aggregate job data, and increased employment opportunities

21 Tara Sophia Mohr, “Why Women Don’t Apply for Jobs Unless They’re 100% Qualified,” Harvard Business Review, August 25, 2014, <https://hbr.org/2014/08/why-women-dont-apply-for-jobs-unless-theyre-100-qualified>.

22 Whiteboard Advisors and U.S. Chamber of Commerce Foundation, “Landscape Analysis.”

Individuals Can Better Signal Their Qualifications to Opportunities

Use cases 3 and 4 provide ideas for experimenting with reducing barrier 1: hiring practices may inadvertently filter out or discourage opportunity populations. Additionally, use case 4 offers an approach to reducing barrier 2: career and educational advising for opportunity populations is under resourced. Use case 4 resides within a broader focus on expanding human and digital advising capacity so more individuals can connect with recommendations for their unique trajectories. Since use case 4 involves individual-level data (personally identifiable information), documentation from individuals to the marketplace should be reviewed thoroughly for equity implications and to protect the data which takes into account barrier 3: technology is a double-edged sword. Recommendations to encourage use of and build capacity to evaluate digital records and alternative credentials like badges and portfolios is immediately actionable technologically. The learning and employment records (LERs) introduced by the T3 Innovation Network are able to be offered by any cooperating vendor and are currently in pilot testing.

Use Case 3: Job seekers can more accurately communicate their skills to employers

Problem: Workers struggle to communicate their full range of skills to employers through today’s hiring processes. Opportunity populations often bring a range of skills acquired through nontraditional education and career pathways—but many application processes do not accommodate the sharing of this information.

Example Pain Points:

- Hiring processes make it challenging to make cross-sector skill applicability clear to employers. For example, workers with experience in retail or food service develop strong interpersonal skills that are ideal for a white-collar workplace but may not appear equivalent. This makes transitions between occupations unnecessarily difficult.
- Employers may discount credentials that they are unfamiliar with (e.g., how credentials and skills achieved in the military relate to workforce needs).
- Foster youth and many minorities, such as indigenous populations, experience trauma and hardships that provide them with valuable skills like resilience, integrity, and vigilance, but may need help translating life experiences into their work portfolio and documentation.

How Can Technology Play a Role? Skills-based and nontraditional hiring technologies can help fill the data gaps that prevent employers and job seekers from clearly communicating skills requirements and skills obtained. Job seekers should be able to present a more holistic picture of their skills in ways that are useful to employers and, ideally, efficient for them to process. Job seekers have different levels of qualification based on their past interactions with the education and workforce systems, and many of these interactions are affected by discrimination, socioeconomic status, disparate impact, and other barriers. Hiring technologies should aim to communicate the qualifications and experiences of job seekers while also making connections to continued learning opportunities for job seekers.

Recommendations: As the key source of demand for skills, employers can explore accepting from applicants more varied assertions of skills, such as badges, portfolios, experiences, and certifications. These may be stored as a collection on a profile or arrive as a series of links. LERs could be used to hold all of these and be stored in “wallets.” Employers that use skills-based hiring practices (such as JDx) and accept machine-actionable records from applicants (such as LERs) can use competency translation algorithms to match prospective employees’ machine-actionable skills to machine-actionable job descriptions to make hiring decisions. As algorithms learn, employers and job seekers can each describe skills in their own “language,” or style, and still be matchable. However, employers should be careful to consider the ways in which recommendation algorithms can reinforce existing inequalities. Finally, workforce intermediaries can supplement their advising with training in using nontraditional presentations of skills.

Success Criteria:

- Stakeholders are informed about their options for using alternative records such as LERs at multiple levels and departments within their organizations.
- LER advocates work to ensure that adoption does not become concentrated in high-tech users.
- Stakeholders take a thoughtful approach to using digital records and highlighting alternative paths to qualification, as opposed to using only transcripts or essentially the same contents as a resume.
- Because of the use of LERs, individuals have ownership and agency over their learning and employment records and are able to share them with employers and educators in an interoperable manner.

What Long-Term Success Could Look Like:

- **For Employers:** Reduced time to hire, more qualified applicants, and reduced training time for new hires
- **For Learners and Workers:** Reduced time to find a position and reduced hiring outcome discrepancies between similarly qualified members of different demographic groups
- **For Talent Sourcing Providers/Workforce Intermediaries:** Education and workforce systems ingest and understand digital records, accelerating the assignment of prior learning assessment credit

Use Case 4: Workforce organizations and educational providers can help job seekers manage their records and apply to jobs

Problem: Community-based organizations and educators struggle to scale their efforts to assist individuals in career navigation and to align education and career pathways for the populations they serve.

Example Pain Points:

- Certain skilled people may be excluded simply because they don't have the English proficiency or the digital literacy required to navigate an application. For high-demand positions that don't require English proficiency, such as behind the scenes staff in restaurants or corporate janitorial employees, language barriers are nonetheless an obstacle to getting the position.
- Individual career counseling is overwhelmed for those who need it most. For example, community-based organization staffers spend an inordinate amount of time completing paper-based skill inventories to document clients' pre-incarceration and rehabilitative employment histories as well as their participation in vocational training programs while in prison. Frequent facility moves interrupt a counselors programming and his or her ability to keep track of earned skills and credentials.

How Can Technology Play a Role? LERs can support workforce intermediaries' case management efforts by helping them keep records organized, private, secure, and valid. LERs are uniquely interoperable across employer and education systems. Once employers and educators accept and verify the record, the same record could be shared with multiple organizations and stakeholders, potentially preventing re-entering the same information multiple times into interfaces. LERs can store "verifiable credentials," which can ensure to a viewer that a credential is legitimate, belongs to the holder, and is currently valid (as opposed to expired or revoked). LERs can be more effective and efficient in verifying an individual's record by reducing—and possibly eliminating—calls to credential issuers and previous employers. The ability for individuals to have agency and control over their records is also an emerging opportunity. LERs can enable selective and progressive disclosure. Various disclosure features allow applicants to be evaluated in an incremental fashion that does not reveal their sensitive information (e.g., citizenship status, criminal record) all at once. Like a "blind audition," uptake of this practice can potentially cut down on human bias introduced during the application process.

Recommendations: Workforce intermediaries, educators, and employers can learn more about innovations in records and receive updates and best practices for using and implementing LERs through the LER Resource Hub.²³ Employers can begin to encourage and open up their applications processes to accept LERs, badges, wallets, and other nontraditional documentation.

Success Criteria:

- Communities of practice emerge to support opportunity populations and workforce intermediaries by providing ongoing ethical, practical, and technical guidance, as well as collaboration.
- Developers of LERs, badges, wallets, and profiles and the software that deploys them are able to provide meaningful, independently verified assurances to users that their data is secure with clear guidance around consent, use, reuse, misuse, and good use of data.

What Long-Term Success Could Look Like:

- **For Employers:** Access to more qualified applicants to fill open positions, access to new talent markets, and reduced time to hire
- **For Learners and Workers:** Reduced time to employment, more opportunities to communicate skills and experience to potential employers, and reduction in hiring outcome discrepancies between similarly qualified members of different demographic groups
- **For Talent Sourcing Providers/Workforce Intermediaries:** Career centers and information systems are able to help learners and workers document their learning in a digital and interoperable way that employer systems could ingest.

23 T3 Innovation Network, "LER Hub."

Individuals Can Use Pathways Applications to Navigate Their Careers

The following use case can be explored to reduce barrier 2: career and educational advising for opportunity populations is under resourced. Career pathways applications can connect the dots between individual goals, constraints, education choices, employment opportunities, labor market demands, salary goals, wraparound supports, and many other factors. Powered by algorithms, these applications match people to industries, occupations, opportunities, and training programs while identifying skills gaps and providing users direction. Additionally, new and emerging technologies have the potential to provide language, cultural, and other tailored supports that would not be possible without economies of scale. These applications can also help otherwise disconnected individuals make a plan and stay on track. Structured job descriptions and individual records could help improve these algorithms. Career pathways applications are available from many vendors with various integrations. These applications could continue to be improved and evolve to make highly advanced recommendations using learner and worker skills data and include outcomes data about jobs and programs to help users make decisions. Such advanced personalization can take some of the guesswork out of career planning.

Use Case 5: Individuals are able to discover opportunities using advanced career pathways applications

Problem: Job seekers lack the resources and tools to navigate and explore the full range of available opportunities, often isolating them to opportunities with limited economic and career mobility.

Example Pain Points:

- High-income individuals have access to decision-making support such as career counseling and to social capital through their families, friends, and educational providers. Opportunity populations who don't have access to these resources are placed at a comparative disadvantage and face an initially narrower set of career options to explore. Members of opportunity populations may end up in suboptimal roles simply because they are not aware of available, better opportunities.
- Piecing together wraparound supports, such as housing, childcare, and transportation, presents additional challenges to the job search process. For example, if a job seeker can accept only positions accessible by public transit, he or she will have to look up each potential employer's address to evaluate the commute, which is time-intensive.
- Understanding what training will lead to employment in a desired job is often unclear and challenging to navigate. Opportunity seekers need to be able to discover what training is necessary, how much it will cost, and where it can be found.

How Can Technology Play a Role? Matching people to open jobs involves not only skills and credentials, but also goals, preferences, constraints, and barriers. Job matching software can help inform individuals about all available options and which ones are suggested matches. However, individuals still need to be encouraged, trained, and supported in their use of this software. Members of opportunity populations approach software with different levels of preparation and levels of access to the internet, smartphones, and computers. Advocates for improved career navigation software must take these differences into account and create strategies to ameliorate limited access. Finally, it is important to note that the algorithm for such software is limited by access to and quality of the data, which is further limited by an understanding of which data are important to include.

Recommendations: Software tools can help opportunity seekers by recommending holistic career navigation options that consider goals, skills, preferences, constraints, geography, labor market information, wraparound services/public services, career ladders, and training opportunities. While such applications already exist, typically they are data-constrained by which users enter their information, and recommendations are made against a generalized framework, such as the U.S. Department of Labor's Occupational Information Network (O*NET). More and better-structured competency data can inform future pathways applications that can make improved, more precise recommendations to job seekers.

Success Criteria:

- Matching algorithms are subjected to ongoing independent review for de-biasing.
- Developers of software portals and applications conduct user research with intended beneficiaries, taking care to include members of opportunity populations.
- Operators of software tools provide ongoing user support, education, documentation, and interfaces for individuals and organizations serving opportunity populations.

What Long-Term Success Could Look Like:

- **For Employers:** More qualified applicants and reduced time to hire
- **For Learners and Workers:** Improved career satisfaction, better career advancement and higher earnings, ability to apply to more and better-fitting positions, improved access to career counseling, and greater satisfaction with and completion of educational programs
- **For Talent Sourcing Providers/Workforce Intermediaries:** Organization staff time freed up to engage in fewer administrative tasks and provide more individual career and educational advising

Opportunity Population User Story: The following user story illustrates how many of the above use cases may play out in the real world for an opportunity seeker

Olivia is a 20-year-old restaurant server who was laid off after her workplace closed temporarily due to COVID-19. Olivia has excellent customer service skills and strong communication skills, and is a natural problem solver, but she has never used these skills outside of the restaurant industry. Olivia completed one year of community college but had to leave the program due to financial barriers and never earned a credential. During a visit to her local job center, Olivia begins working with a case manager who encourages her to search for jobs that list “customer service” and “customer support” as core competencies.

Olivia finds a number of job openings at a local call center in need of customer support staff. Upon reviewing the job posting, Olivia knows she has some of the skills listed (e.g., customer service experience, bilingual in Spanish and English, strong oral communication skills). However, Olivia doesn’t have an associate degree, which is a requirement. Additionally, she isn’t sure if her two years of experience working as a server will count as two years of customer service experience at a call center. Although the pay at this job is comparable to her pay as a server, Olivia is interested in learning whether the position could lead to higher-paying opportunities. She’s heard that some companies will assist their employees with training so they can move into higher-paying roles. Olivia does not have a car, and the job posting doesn’t state whether the job location is accessible by public transit. Olivia applies for a position through an online job application, which takes her about two hours to complete on the company’s website.

Current State	Ideal State
<p>Job Matching: Job search tools yield many results for customer service, but the filters are not sophisticated enough to precisely match Olivia with the roles that may be a best fit for her. Key data on job openings is lacking, including proximity to public transportation, whether career pathways are available, and other key data that will help Olivia assess if this job is a good match. Olivia spends a lot of time reading job postings and applying to positions she is not qualified for.</p>	<p>Job Matching: AI assists Olivia in identifying open jobs that are a match to her current skill set and educational background, preferences, and constraints. Rich job data including worksite public transit proximity, education assistance, career pathways, and resource requirements are readily available and can be included as part of the job-matching process.</p>
<p>Signaling from Employer: Job seekers like Olivia struggle to understand which roles they are qualified for, which roles are worth the effort to apply to, and what skills are required for roles. The associate degree requirement in Olivia’s case may not be needed for a successful applicant to do the job, and in this case, it may be sending an incorrect signal to job seekers who may be qualified.</p>	<p>Signaling from Employer: The employer develops a job description and posting using a job data standard, such as JDX JobSchema+, that enables the hiring manager to clearly articulate the hiring needs based on industry best practices. Olivia is able to better search job opportunities that are more organized using structured data. The skill requirements are clearly articulated, making it easy for her to search for specific skills she knows she has. Rich skill descriptions are embedded within the listing (e.g., a hyperlink) to enable Olivia to understand skill requirements at a more granular level. Olivia can now recognize how her current skills align with the posting. Over time, the employer re-evaluates whether an associate degree is truly required to fill this position and determines that the degree is being used as a proxy for soft skills. The employer then chooses to update the job description and future postings to list the skills and alternative certificates that can help demonstrate the competence.</p>

<p>Communicating Skills: Skills acquired through extracurricular activities, coursework, and on-the-job learning are difficult to communicate using today’s data systems. Olivia’s one year of community college will not count toward her experiences as no degree was attained, but she learned many valuable skills through her coursework.</p>	<p>Communicating Skills: Olivia has LERs that capture her accomplishments, work experiences, and learning achievements from high school, extracurricular activities, and work. Her LERs highlight the strong communication and customer service skills she’s acquired within and outside the classroom. Rich skill descriptions are embedded within her record, and she’s able to seamlessly share her experience by authorizing her digital wallet to share this information with a career site. Several of her records are verified, so the employer does not have to reach out to other stakeholders to confirm the records.</p>
<p>Applicant Screening: Without an easy way for Olivia to share her learning and employment record, she manually inputs her learning and employment data into the online application but may not be entering the right keywords to inform the algorithm that assesses screening processes. The employer may have a high demand for bilingual skills, but it’s unclear how important this skill is in the job posting itself. Additionally, Olivia may be screened out due to not obtaining an associate degree.</p>	<p>Applicant Screening: Rich skill descriptions are embedded within Olivia’s learning and employment record, enabling employer HR technology to quickly scan and act on machine-actionable skills data. The system is able to use algorithms to reveal that two years of experience in customer service and one year of community college may be equivalent to an associate degree for this position. Skills and competencies acquired through Olivia’s one year of community college can play a key role in the selection process. Competency-based hiring processes can seamlessly communicate the competencies associated with her completed coursework, even if no degree was earned.</p>
<p>Applicant Selection Process: The use of algorithms to screen talent and move job seekers to the next step of the selection process may result in Olivia not being moved forward, as she lacks the degree requirement. The employer is unable to get a full picture of Olivia’s skills and experiences, and a hiring manager may not even look at her application as her skills were not clearly articulated as part of the hiring process.</p>	<p>Applicant Selection Process: Skills-based hiring practices and technologies reduce the cost of searching for talent. Degrees are not a proxy for skills, especially in entry-level roles in which skills can be learned on the job. Olivia is in fact qualified for an entry-level call center job, as customer service is the primary skill needed for the role. After two weeks of company training, Olivia will quickly get up to speed and possess the skills she needs to perform well in her role.</p>

The way talent data are collected, communicated, and shared between employers, education providers, and systems used by jobseekers must be transformed to facilitate skills-based learning and hiring practices to address barriers to employment and career opportunities.

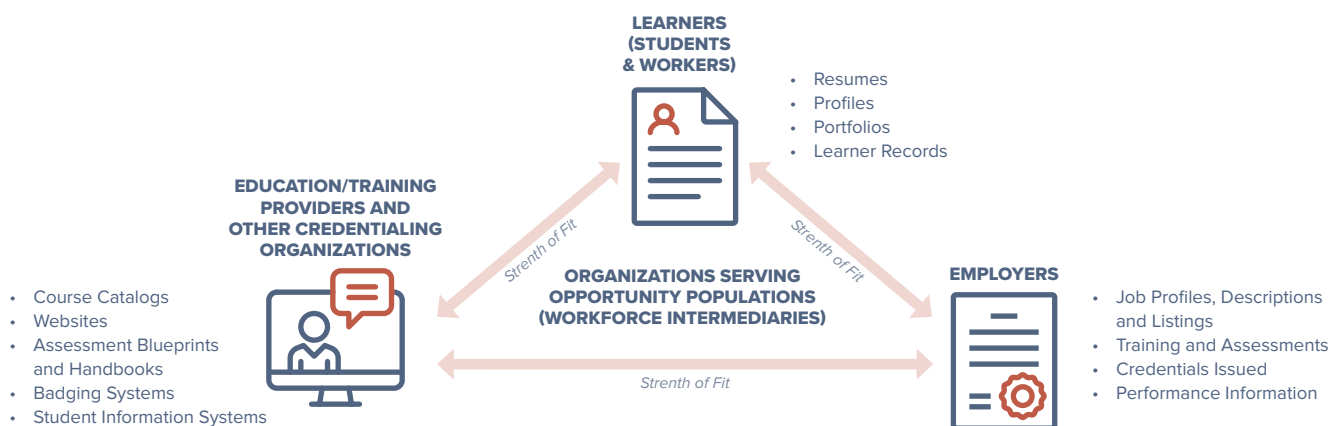
Part 3: Recommendations

The Chamber Foundation’s initiatives work with communities of practice to improve education and workforce partnerships and their supporting infrastructure to better align education, workforce, and credentialing data with the needs of today’s economy. As discussed in this report, technology alone cannot address the barriers listed above, but can help prompt and facilitate progress toward a more inclusive workforce for conscientious outcomes, including as a catalyst for a marketplace shift toward a skills-based hiring ecosystem. This progress must be the result of understanding the processes that opportunity seekers go through, that employers use to hire, and that workforce intermediaries use to serve opportunity seekers. The following recommendations support the above use cases and elaborate on where the Chamber Foundation initiatives and resources could play a role. These recommendations will be most effective when implemented as part of a holistic transformation: improvements to technology, processes, partnerships, and governance must function in concert when pulling levers intended to assist opportunity populations.

Employers, educators, and workforce intermediaries can consider innovation strategies related to three main categories of documentation: curricula and competency frameworks (or models); job postings and descriptions; and expressions of individuals’ skills (e.g., resumes, CVs, profiles, transcripts). Open standards are a way to improve the communication between these documentation systems. A connected ecosystem with good information flow between stakeholders can result in efficient and fruitful connections throughout.

Data standards, particularly open data standards, make it easier to publish, share, and use data across diverse communities. Such standards can boost data quality, open new markets, lead to the creation of innovative tools and services, simplify and streamline the process of combining information, lower costs associated with data production and use, support policy implementation, and encourage collaboration and promote a common understanding and shared vision.²⁴

The T3 Innovation Network has been actively promoting the use of open data standards, as well as harmonization of existing data standards, to enhance interoperability across employer, education, and other data systems. This work enables a plurality of interoperable data formats to be used without needing to gravitate toward an impossible single standard. Program and credential information, learning objectives, competency frameworks, job postings, and digital records can all benefit from incorporating an open data standard.



24 T3 Innovation Network, “About LERs,” <https://lerhub.org/s/curators/ilr-utilities/GPRNsnPxFn3XE7Qbs>.

Recommendation 1: Educators and certification bodies can share their program information, learning objectives, and competency frameworks

Education, Training, and Credential Program Descriptions

Education and training providers have an opportunity to use open standards to share descriptions of programs or credentials and include rich data about program content, costs, wraparound support, and occupations that align with a given program. Many education and training providers, as well as the Eligible Training Provider lists managed by state workforce agencies, do not use common data standards or linked data formats to describe program offerings. As a result, discrepancies across data elements and definitions, and how they are displayed, can limit opportunity seekers' ability to analyze and compare available programs. Broader adoption of data standards that describe programs and credentials will create more visibility and transparency around programs, enabling opportunity populations to more easily navigate the many training and credentialing programs available to them, such as through search or pathways applications.

Credential Engine's Credential Transparency Description Language (CTDL) is a schema²⁵ that describes credentials, including key fields such as estimated cost, duration, financial assistance, credential prerequisites, relationships to other credentials, and employment and earnings profiles (under development). This information offers useful data points for opportunity seekers looking for information on education and training programs to help them understand and analyze what it would take (i.e., cost-benefit analysis) to change career paths, upskill, or reskill for upward mobility. Broader adoption of data standards that provide rich metadata about credentials and training programs can also enable employers to understand the competencies associated with a specific credential with which they may not be familiar. Organizations working to serve opportunity populations can encourage education, training, and credentialing providers in their networks to publish data using a standard in order for other tools and systems to be able to search, discover, analyze, and ingest the information more easily. For education, training, and credentialing providers that are currently, or would like to start, structuring their data, Schema.org's EducationalOccupationalProgram and WorkBasedProgram data properties include program schedule, duration, credits, occupational category, credential, prerequisites, application deadline, and expected salary upon completion. Google is using schemas and structured data to catapult the visibility of education, training, and credentialing programs by featuring a way to navigate through program offerings and provide high-level information for learners and job seekers at the top of Google search results through its Google Pathways feature.²⁶ Google describes the process, "When people search for things like 'entry-level jobs' or 'job training' on Google, they'll be able to more easily find jobs that are in demand, discover local training programs to prepare them for those jobs, and compare program costs and outcomes."²⁷

Use Open Data Standards for Competency Frameworks and Learning Objectives

In addition to more structured programmatic information, it is important to advance the ability to use data in ways that allow for increased communication about learning objectives and competency frameworks to encourage skills-based learning and hiring in the talent marketplace. According to the Competency-Based Education Network, learners should be able to "acquire and demonstrate their knowledge and skills by engaging in learning exercises, activities, and experiences that align with clearly defined programmatic outcomes." Benefits of competency-based approaches can include more flexible and affordable programming and helping learners to more clearly understand and communicate the skills they possess that would be of interest to future employers.

25 Credential Engine, "Credential Transparency Description Language," CE Technical, July 31, 2020, <https://credreg.net/ctdl/terms/Credential#Credential>.

26 Google, "Help Create Paths to New Job Opportunities," <https://jobs.google.com/pathways/>.

27 Google, "Help Create Paths."

Most education, training, and credentialing providers have skills- and competency-related information stored in a spectrum from undigitized formats (e.g., paper syllabi without a digital copy) to open, structured, linked data formats (e.g., O*NET). The closer formats are to linked, open data, the more useful skills and competency data will be as it can be searched, discovered, analyzed, and imbedded in learning and employment records. Education, training, and credentialing providers that use open data standards for their credentials can provide learners and workers with documentation of the skills they have obtained through their education and training that can be used in LERs and other digital records.

The adoption and use of open, linked data are currently limited to highly innovative employer and education data systems. Therefore, the T3 Innovation Network's Competency Data Collaborative projects are in the process of developing and pilot testing two open-source tools to help competency and skills data become more accessible and machine-actionable to create innovative, data-driven skills-based curricula and hiring practices. The Competency Framework Extraction Module is an open-source tool that can convert skill and competency data into a variety of common, digital, machine-actionable formats used by learning, training, and credentialing software.²⁸ Additionally, the Open Competency Framework Collaborative is an open member trust network to make competency and skill frameworks readily available to people and machines through agreed-upon search, retrieval, and retention rules. Both tools can increase the permitted use and reuse of skills and competency data among stakeholders.

Once stakeholders allow for skills and competency data to be accessible and machine-actionable, then competency translation and analysis tools can algorithmically extract, relate, and use skills data, such as to enable comparison of a resume with a job description to determine alignment without any of the same language needing to be shared between documents. For example, a skill on a resume listed as "strong team leadership" could be considered relevant to a job requirement of "keep staff morale high." The key to all new open data tools, resources, and innovation within the T3 Innovation Network and other initiatives will be providing community-facing guidance on how to effectively and appropriately use and reuse skills and competency data for education and career opportunities.

Recommendation 2: Employers can move toward skills-based, structured, and right-sized job requirements

Use cases 1 and 2 recommend employers use a job data standard to provide clearer information about specific job requirements/offerings that could assist job seekers, especially opportunity populations, in assessing the right job fit during the application processes as well as accepting or rejecting a job offer. The ability to implement, use, and analyze structured data on jobs and job seeker outcomes can also improve competency-based learning and hiring to be more equity-minded and inclusive.

The first step in rethinking equity-based hiring requirements is prioritizing the use of skills and competency-based data in the hiring process. Southern New Hampshire University's College for America describes it as an "approach to talent management that starts with identifying the particular skills required in a role and then prioritizing assessments or credentials that look for those skills. It promises to empower employers to align recruitment around business results, rather than around resumes. On the other hand, competency-based hiring also empowers students, workers, and schools to establish and follow clearer classroom-to-career pathways."²⁹ This process can be implemented in the common HR practice of job analysis. The process may involve multiple departments and can benefit from

28 T3 Innovation Network, "LER Hub Pilots Community T3 Network Tools," <https://lerhub.org/s/curators/specs-0/s6wb9CdEi3qoxJQ48-0>.

29 Southern New Hampshire University College for America, "The Coming Paradigm Shift in Competency-Based Hiring: An Interview With Innovate+Educate," April 12, 2017, <https://collegeforamerica.org/competency-based-hiring/#:~:text=Competency%2Dbased%20hiring%20is%20an,result%2C%20rather%20than%20around%20r%C3%A9sum%C3%A9s>.

partnership with community-based organizations and educational institutions. Competency-based hiring benefits from attention to design, such as fleshing out use cases and benchmarking existing hiring outcomes for comparison.

The Chamber Foundation's TPM initiative, modeled after supply chain management principles, provides a comprehensive set of steps employers can follow to improve the supply of qualified job seekers from education, training, and credentialing providers. Employers can use the TPM framework to work together to identify and prioritize hiring requirements to develop job descriptions and postings that more clearly communicate workforce needs and opportunities to education and workforce partners—that will ultimately reach learners and workers. Stakeholders interviewed for this report emphasized that “right-sizing” job descriptions will require employers to reconsider which skills are truly needed for a job and to efficiently signal skills and other requirements to learners and workers. TPM is widely used with thousands of employers and has released curricula for upskilling and guidance for employers working with opportunity populations.

Moving toward skills and competency-based hiring is an important initial step to begin adopting and implementing the use of structured data on jobs. JDX JobSchema+ will provide an open data standard for richly describing jobs on the web. It builds on existing open standards, namely HR Open Standards' PositionOpening³⁰ and Schema.org's JobPosting,³¹ demonstrating the value of standards-based collaboration so as not to reinvent the wheel. JDX aims to fit into human resource information systems' workflows; guidance will be hosted by the T3 Innovation Network Resource Hub (planned to launch in the fourth quarter of 2020) as a free and public resource available to all stakeholders. Job descriptions produced in JDX can inform talent providers' curricula and help workforce organizations pinpoint appropriate opportunities for the individuals they serve. Any interface that uses JDX JobSchema+ must provide an explanation of fields to be completed by an employer. In addition to job postings intended to be viewed by job seekers, the JDX workflow will be able to generate machine-actionable job descriptions that, when pooled, can provide state-of-the-art labor market insights.

As job description data are pooled in observance of antitrust laws (e.g., sufficient employer anonymity), employers can learn from one another about right-size requirements and safeguard against asking too much or too little of job seekers. Several governance options exist for pooling job description data, such as data collaboratives and data trusts, which can lead to responsible data sharing to create new value—including labor market insights regarding in-demand skills.

Recommendation 3: Employers, educators, and workforce intermediaries can generate and use new LERs

Learning and Employment Records

LERs are a type of digital record of learning and work that can be linked to an individual and combined with other digital records for use by those pursuing educational and employment opportunities. An LER can document learning wherever it occurs, including at the workplace or through an education experience, credentialing, or military training. It can also include information about employment history and earnings.³² LERs can capture and communicate data to paint a fuller picture of the applicant that may not fit on traditional resumes. Opportunity populations often acquire skills and knowledge through nontraditional education and career pathways on nontraditional timelines. Dual enrollment, extracurriculars, volunteer work, and professional experience may provide learners critical exposure to new fields and motivation for their studies. Individual documentation of these

30 HR Open Standards, “A Global Standards Community,” <https://www.hropenstandards.org/>.

31 <https://schema.org/JobPosting>.

32 T3 Innovation Network, “About LERs.”

activities can provide additional skills data for LERs in addition to helping learners cultivate interests useful for career navigation applications and conversations with career coaches.

These individual-owned records can be accumulated in a “digital wallet,”³³ “backpack,” or similar interface for viewing, editing, and sharing the contents with employers, educational institutions, and other stakeholders. LERs are designed to be interoperable (i.e., able to be processed and used by a range of systems and vendors). Individuals can carry their records with them throughout their careers. LERs could also help legitimize nontraditional credentials by storing verification that the credential is valid and belongs to the user; this way, the employer may not need to verify with the issuing institution the authenticity or status of a claimed badge, degree, or individual skill. With an individual’s informed consent, LERs could allow workforce organizations to conduct longitudinal analyses, resulting in statistical inferences that can vastly improve the state of knowledge about trends in the barriers and benefits experienced by individuals—in contexts ranging from early childhood education to employee retention.

The T3 Innovation Network has proposed a specification for LERs that is accessible to all vendors. More than a dozen LER pilot teams are currently exploring, creating, and transferring LERs between stakeholder groups. For instance, an LER pilot could include an employer’s HRIS or ATS accepting, ingesting, and using an individual’s university transcript (given they were provided permission from the individual to do so) with minimum manual entry of data. The LER Resource Hub provides a data standards directory³⁴ and a data standards mapping tool³⁵ that enables users to understand how different data standards used in LERs can interact to facilitate data exchanges across systems.

Many collaborations between employers; technology vendors; and education, training, and credentialing providers are pilot testing LERs with specific programs. Organizations and initiatives that enable, interconnect, and support multiple LER pilots in their communities must also hold themselves accountable to solicit and respond to the needs of end users, like learners and workers. Such outreach can help crowdsource stakeholder needs and pain points and unify energy around the common problems and goals between pilots to allow issues and findings to surface and be shared. As recommended in the Annie E. Case Foundation’s “Theory of Change: A Practical Tool for Action, Results and Learning” it is critical to understand the relationships “between outcomes, assumptions, strategies, and results,” when attempting to create change. Organizations and initiatives should be flexible to respond to what arises as salient and empower communities to problem-solve for themselves so they can self-sustain LERs or other digital record use.

LER Data Governance

The T3 Network has recommended that self-sovereign identity (SSI), a set of technical standards and principles that give individuals control over their personal data, be implemented for LERs. SSI allows record holders to control access to their learning and employment record data, including setting durations for use and revoking access. Community-based organizations could play a role in helping test data governance practices that are inclusive of opportunity populations—particularly to ensure that individuals have agency over their records. Wallet vendors, issuers, and recipients of LERs have an opportunity to honor the agency of SSI proactively and of individual rights protectively. The LER governance rights proposed in the T3 Network paper, “Applying Self-Sovereign Identity Principles to Interoperable Learning Records,” provide an excellent starting point.³⁶

33 The T3 Network released a specification for such wallets to promote interoperability. See <https://cdn.filestackcontent.com/preview/FeqEJI3S5KelmLv8XJss>.

34 T3 Innovation Network, “Data Standards Directory,” <https://lerhub.org/s/curators/m7rgf7r2tCwM3CwsQ/sxAGAguomKdrosfLk>.

35 T3 Innovation Network, “Standards Mapping Tool,” <https://lerhub.org/s/curators/m7rgf7r2tCwM3CwsQ/mapping-tool>.

36 T3 Innovation Network, “Applying Self-Sovereign Identity Principles to Interoperable Learning Records,” June 2020, <https://cdn.filestackcontent.com/preview/9g21loK6RriHFkPRE4zJ>.

LER data have great potential for research if individuals can knowingly consent to sharing their LERs for research purposes. A tradeoff exists between representativeness and SSI in terms of self-selection bias and the representativeness of contributed data. The integrity of an individual’s agency must be respected to build trust. Therefore, proper incentivization of opportunity populations’ participation in public-good-oriented collaboratives—and a way to signal which initiatives are legitimate and which are commercialized or even scams—is a focal solution. Worker histories, when combined with other key data such as demographics and wage outcomes, can provide valuable insight into the unique challenges faced by opportunity populations. Armed with robust information about the relationships among individuals’ work history, experience, education, wages, and demographics, researchers will be able to guide policy initiatives, effectively allocate service delivery, and provide job seekers meaningful, data-supported advice.

Recommendation 4: Individual-level data collaboratives can include learner/worker representation

The T3 Innovation Network’s Individual-Level Data Collaboratives Project has been generating guidance and best practices around forming data collaboratives to better understand and analyze data in the talent marketplace. Given the economic consequences of COVID-19, project participants emphasize understanding labor market data in real time—including unemployment insurance claims dashboards, scaling up assistance programs to support job seekers, improving access to career resources and wraparound services, and making training and education program outcomes more readily available to the public. To gather the data needed to support the talent marketplace, public and private organizations will need to pool or exchange data to create public value through a data collaborative.

Valuable insights for the talent ecosystem lie at the intersection of public and private datasets—including measuring the return on investment for training programs by combining participant records with wage and employment records governed by the U.S. Department of Labor and/or state labor agencies. Connected data resources that tie program participant data to wage records hold great promise for opportunity populations and the organizations that serve them, namely in terms of determining what works (and what doesn’t) in workforce development. Training-related return on investment is a core metric that can better assist workforce organizations in helping opportunity populations—who often have limited financial resources or face high barriers to work—navigate the education and training marketplace. LERs can also serve as a promising input for data collaboratives. To guarantee that individual-level data remain protected and governed appropriately, data collaboratives should implement guidance and informed consent practices for individual contributors.

Due to a lack of widespread education about data value, stewardship, and allowable use, individuals may find themselves unable to effectively assess and manage risk—and their rights—when granting access to their personal data. Participatory data governance models offer possible solutions. Some examples of participatory governance approaches include GovLab’s Data Assembly,³⁷ Actionable Intelligence for Social Policy’s Toolkit for Centering Racial Equity Throughout Data Integration,³⁸ and the Broward Data Collaborative that is creating an integrated data system for sharing strengths-based stories about Broward County and using data to co-create system and policy improvements.³⁹

37 The Governance Lab, “Public Deliberation on the Re-use of Data,” The Data Assembly, <https://thedataassembly.org/#:~:text=The%20Data%20Assembly%20is%20a,states%2C%20or%20the%20federal%20level>.

38 Amy Hawn Nelson, Della Jenkins, Sharon Zanti, Matthew Katz, Emily Berkowitz, TC Burnett, and Dennis Culhana, “A Toolkit for Centering Racial Equity Throughout Data Integration,” Actionable Intelligence for Social Policy, University of Pennsylvania, 2020, <https://www.aisp.upenn.edu/centering-racial-equity/>.

39 Nelson et al., “A Toolkit for Centering Racial Equity.”

Conclusion

Opportunity populations face systemic barriers throughout education and work, often due to lack of access to resources and education, non-inclusive hiring practices, disengagement, sparse career and educational advising, and challenges with access to and use of technology, among other barriers. A disconnected ecosystem that undervalues users' needs and voices when designing systems cannot effectively lead the labor market to an inclusive recovery.

A thoughtfully assembled ecosystem could benefit all stakeholders. It can engender a holistic sense of individuals' skills, closer matching of individuals and jobs, better online career exploration resources, more advanced filtering of job postings, clearer communication of requirements in job postings, improved approaches to de-biasing application screening, better control over learning and employment data, and clearer representation in the decisions around data that affect opportunity populations.

Focusing on skills and competency-based hiring and records instead of proxies or pedigrees requires cultural and practical shifts that reorient the workforce ecosystem toward encouraging the presentation of opportunity seekers' diverse avenues to their qualifications. Workforce technologies hold promise for economizing and scaling skill and competency-based hiring, but they may solidify existing barriers if not designed with outcomes in mind. Technologies and tools on their own are not enough to ameliorate the obstacles faced by opportunity populations. It is critical to involve all key stakeholders—especially those serving individuals with the highest barriers to ecosystem participation—in related design, testing, governance, ongoing implementation, and accountability. A shift toward a skills-and competency-based hiring ecosystem with substantive, ongoing engagement and partnerships with employers; education, training and, credential providers; organizations serving opportunity populations; and learners and workers has an opportunity to support disadvantaged populations. If these initiatives provoke meaningful conversations about change, these recommendations can help construct the foundation needed to move the talent marketplace forward.

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Organization

Central Plains Center for Services

Chicagoland Workforce Funders Alliance

Coalition on Adult Basic Education (COABE)

Georgetown Pivot Program

International Rescue Committee

Jobs For the Future (JFF)

Nebraska Children and Families Foundation

Opportunity@Work

Project for Pride in Living

Solutions for Information Design (SOLID)

The Chamber of Commerce for Greater Philadelphia

The Southwest Ohio Region Workforce Investment Board

World Education, Inc. and Digital US

YouthBuild Philadelphia Charter School

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Appendix A: Get Involved

Learn More About the Job Data Exchange (JDX) and Join the Movement

JDX is data standard for job descriptions and postings, supported by open data tools, to improve how quickly and clearly employers communicate in-demand jobs, skills, credentials, and other hiring requirements to education partners, learners, and job seekers.

Website: <https://www.uschamberfoundation.org/workforce-development/JDX>

Job Data Standard (JDX JobSchema+): <https://www.uschamberfoundation.org/jdx/job-schema>

Join the Listserv: <https://pub.s1.exacttarget.com/fbpirq1bgsn>

Learn More About Talent Pipeline Management (TPM) and Join the Movement

TPM is a demand-driven, employer-led approach to closing the skills gap. Utilizing supply chain management principles, employers play an expanded leadership role as “end-customers” of education and workforce partnerships. The TPM framework is composed of six strategies that, when implemented in a particular sequence, make for a talent supply chain approach. Each strategy is designed to build off the others and support employers in developing a more data- and performance-driven approach to improve education and workforce partnerships.

Website: <https://www.uschamberfoundation.org/talent-pipeline-management>

Case Studies: <https://www.uschamberfoundation.org/talent-pipeline-management-case-studies>

TPM Academy and Curriculum: <https://tpmacademy.uschamberfoundation.org/>

Join the Listserv: <https://www.uschamberfoundation.org/talent-pipeline-management-join>

Learn More About the T3 Innovation Network and Join the Movement

The T3 Network is made up of more than 500 public and private stakeholders representing business, government, education, and technology. These organizations are working together to build an open, public-private data and technology infrastructure for a more equitable talent marketplace where (1) all learning count, (2) competencies and skills are the new currency, and (3) empower learners and workers with their data.

Website: <https://www.uschamberfoundation.org/t3-innovation>

Publications: <https://www.uschamberfoundation.org/t3-innovation/background-reports>

Join the Listserv: <https://pub.s1.exacttarget.com/n4hpnhdqzk>

Additionally, learn more about LERs and develop your own LER pilot through the **LER Resource Hub** at LERHub.org.



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