How Advanced Data Systems Can Do More to Drive Economic Mobility

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Introduction

Skills are the new currency of the labor market, but we don't have an appropriate accounting system for a skills first economy. One of the promises of a skills-first economy is that workers who haven't attended college can represent and demonstrate learning from alternative pathways. Evidence suggests that skills can be effectively acquired through a range of channels besides a university education, including self-teaching, non-degree training programs and on-the-job learning. Employers are recognizing this fact, with Burning Glass Institute (BGI) research revealing a 4x increase in the number of job postings that have removed degree requirements in the past 10 years. And for companies which make the leap to skills-based hiring, the payoff can be substantial: BGI's research has found that skills-based candidates stay at their roles 20% longer than degreed candidates (a 61% two-year retention rate v. only 53%, on average, for degreed candidates).

But despite these promising figures, skills-based hiring resulted in less than 1 in 700 additional nondegree hires last year, according to Burning Glass Research. While some of that is likely due to institutional factors, the disconnect between the promise of skills-based hiring and the reality points to a system-wide problem: the feeble infrastructure for communicating, continuously updating, and validating workers' skills. The lack of a comprehensive, standardized, trusted way for skills to be articulated, validated, and recognized leaves workers struggling to convey their abilities and to move between fields, while employers miss out on pools of talented workers. It's a self-perpetuating system of inefficiency and lost opportunity.

It's telling that the sole exception to this dynamic is the market for college-educated workers. In truth, the college transcript often sheds little light on a worker's skills. Though hiring based on degrees has always been a lazy conceit – more a proxy for quality than an actual accounting of capabilities – it does at least offer a standardized language and format for describing educational achievements, giving employers a trusted (albeit imperfect) signal for a worker's capabilities and readiness for a role.

However, even among degreed workers, the weak infrastructure for conveying skills is a problem. Burning Glass Institute research finds that despite a historically tight labor market, more than half of graduates (52%) are underemployed a year after graduation. A decade after graduation, 45% of graduates are underemployed.

Advances in technology mean it is possible to address these problems. The solution many point to involves Learning and Employment

Records (LERs)—digital records of standardized information about a worker's educational and professional achievements. It's important to understand, however, that while adopting LERs in some form is a necessary part of the solution, it's not sufficient. Verification of skills is a critical prerequisite, since employers are unlikely to trust the information contained in LERs without it. Scale is also critical since so much of the potential value created by LERs depends on the network effect. That is, for skills truly to be interoperable across fields and occupations, LERs must also be adopted widely enough that employers and workers converge on common definitions of skills and tasks.

Provided an LER system can clear these two hurdles, the second-order opportunities created by such a system are compelling. Widescale LER adoption can drive macro-level feedback loops that compound many efficiencies gained by individual workers and employers. Large datasets like those entailed in a functioning LER system can also offer rare insight into patterns of career progression, the relationship of skills to career success, and the role employers play in worker mobility. A well-functioning LER system could create considerable efficiencies in measuring and understanding opportunity in the labor market. Key features of such a system could include:

- **Market-based verification of credentials:** Assess the market's evaluation of certain credentials (which could be particularly useful in emerging fields like artificial intelligence and cybersecurity)
- **Market-driven common language of skills:** Promote standardization of skills and abilities—particularly those acquired via non-traditional routes
- **Maps of skills-focused career paths:** Illuminate common trajectories across the workforce linking credentials, skills, and occupations, which could help workers build career plans, allow educators and workforce development specialists to provide effective career guidance, and support employers in identifying potential sources of talent
- **Detailed employer profiles for workers:** Help workers plan professional moves more effectively by generating metrics and benchmarks on employer performance across a range of worker outcome measures
- **Skill gap identification:** Real-time job advertisement and worker profile data can help illuminate gaps between the skills possessed by the workforce and those demanded by employers; a robust LER system could pinpoint these gaps by geography and industry, helping inform the decisions of educators, policymakers, and businesses
- **Indications of emerging skill trends:** Identify skill trends, such as changing patterns of skills demanded in certain regions or industries, or emerging hubs for certain skills
- **Regional economic indicators:** LERs could provide insights into regional economic health by measuring the distribution of skills across different geographies. This could help identify regions with high concentrations of specific skills or areas facing skill shortages.

This paper will provide an overview of the merits and challenges of using an LER-based system to facilitate wide-scale skills-based hiring, from both individual and macro-level standpoints.

So What Are LERs, Anyway?

Learning and Employment Records (LERs) are a unified data system that allows workers to track and communicate their skills and relevant work and educational experiences in a way that's accessible to current or prospective employers.

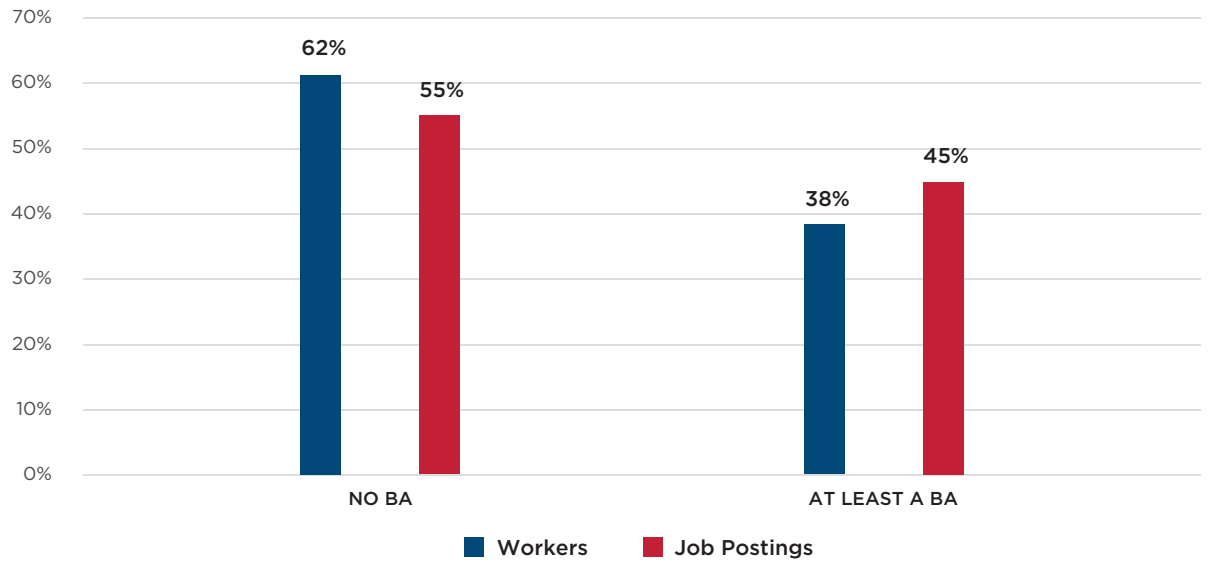
How they work at the individual level is simple—essentially a digitized resume roughly similar to LinkedIn. Workers report skills and competencies as they develop, along with work and educational experiences, entering them into an interface that standardizes the presentation of this information. Current employers can use these data to inform their promotion planning, keep tabs of current employees' new skills and competencies, and identify where high-value skills live in their business. Educators may also rely on LERs to understand the employment outcomes of past students and identify the skills their current students will need to thrive in the workforce.

Why Do We Need LERs?

SKILLS, NOT DEGREES

Data fuels the digital age. But when it comes to the labor market, the current structure of that data, is incomplete and unreliable. There exists only one form of verifiable credential—the college degree—that is consistently reported and recognized as a signal of general capabilities. Employers often look at a worker's credentials as a proxy for capability, since there is not a clear method for employers to understand the breadth and depth of the skills workers possess. This means employers regularly overlook workers who may be able to do the job at hand, artificially constraining the talent pool available to employers and the number of opportunities for workers.

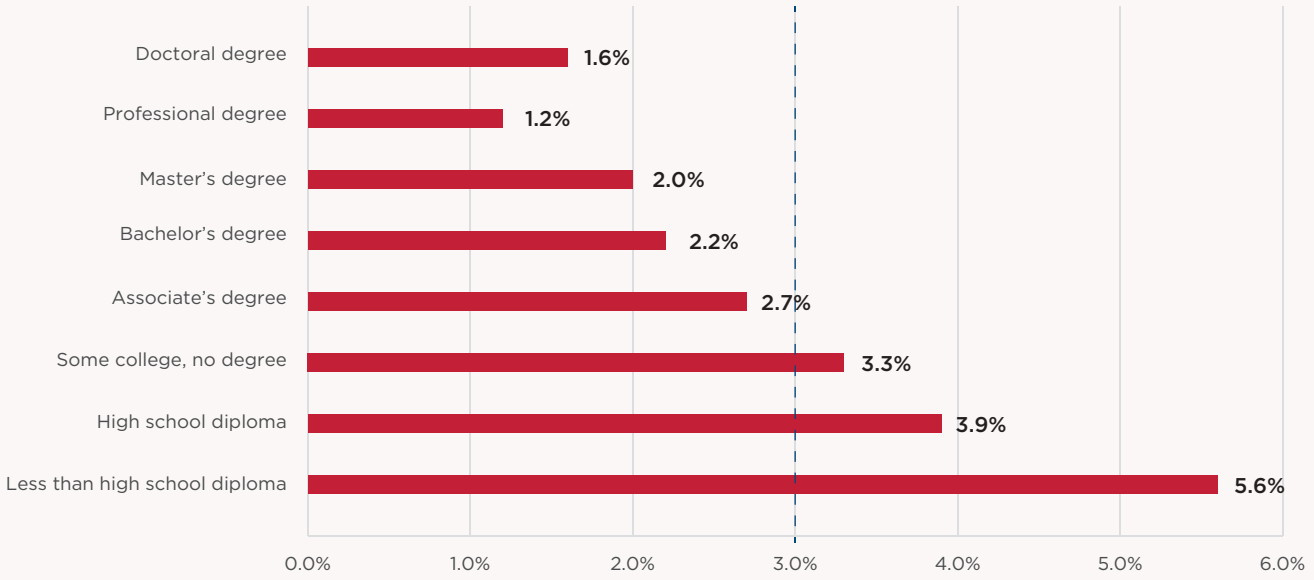
Job Postings Requesting a Bachelor's Degree Outpace the Share of Workers With One



By documenting specific skills, LER-based systems should allow employers to shift away from relying on degrees as a proxy for competence. LERs are designed to capture a broader range of skills and competencies that workers develop throughout their careers and lives. Unlike traditional resumes or degree-based assessments, LERs can recognize and validate skills acquired through other means, including partial college education, on-the-job experience, non-degree credentials, and even experiences outside the professional realm.

As of June 2024, nearly 32 million adults aged 25 and up had attended some college but had not obtained a degree, according to the Bureau of Labor Statistics. Unfortunately, many of these workers do not reap the career opportunities or wage benefits they should have access to from the skills they learned in school. LERs can recognize this type of skill and knowledge by breaking down a four-year degree into distinct sets of courses, helping to create opportunities to recognize these learnings – potentially through passive badging or credentialing past learning. Workers with college degrees stand to benefit from this feature as well, by providing insight to employers the specific courses associated with their degree, rather than just the headline of their college major.

Unemployment Rates by Education Level



Today, level of prior education is a strong predictor of unemployment, despite the myriad other factors that go into what makes a worker valuable to a potential employer. LER systems have the potential to sharpen the focus on what today are harder-to-measure metrics like skill development, so we don't just rely on the easily observable proxies like degrees. Similarly, two workers might have the same degree from the same university but, due to different work experiences, have very different skillsets. This shift can lead to a more nuanced and comprehensive reckoning of a worker's capabilities.

INCREASED MOBILITY AND INCLUSIVITY

Workers often struggle to navigate the labor market. They rarely have easy lines of sight into how to be competitive for roles they are interested in, or in many cases how to even get their foot in the door. Similarly, often workers do not know which roles for which they may even already be competitive. LER systems are poised to significantly enhance worker mobility by providing a more comprehensive and dynamic representation of a worker's skills and capabilities.

A well-functioning system can also create a more equitable labor market by recognizing skills and competencies overlooked in traditional hiring processes. This broader recognition of skills can enhance mobility for workers who may have developed valuable capabilities through non-traditional paths.

Articulating the learning and experiences that workers from non-traditional paths is critical in expanding economic mobility. Workers who grew up in low-income households or lived in disadvantaged neighborhoods are more likely to have gone through a non-college or non-traditional career pathway because they had fewer resources and had to enter the labor market. Without a robust strategy to articulate the skills and learning they have built, they will find themselves stuck in a low-wage trap without ways to represent all of the skills, talents, and capabilities that they bring to work.

This is similarly true for specific sets of disadvantaged workers. Consider veterans who have transitioned back into civilian life – often the skills that they learned in service and

Colorado's Efforts in Skills Based Practices Lend Lessons to the Expansion of LERs

State and Local governments, like many employers, face severe talent shortages due to high economic growth and low unemployment rates. Governments have a responsibility to their constituents to make that economic prosperity accessible to all workers. Colorado has been a leader in the skills first movement. After years of working with the Markle Foundation and the Rework America Alliance, Governor Jared Polis signed an executive order (EO) in April 2022 that establishes skills-based practices as the default method of recruitment and hiring as a critical transition to meet their needs.

The state recognized that skills-based hiring reduces barriers for applicants, helps the state attract and retain right-fit employees, and works to dismantle systemic biases. As a result, Colorado hopes to change the culture around talent recruitment to "encourage full adoption" and become an Employer of Choice.

As a part of the EO, the governor's office is providing resources and timelines for agencies to implement or expand new practices. One of the essential directives of the order is about collecting and using data to help measure program efficiency. Program efficiency, while obviously important, will not be the sole benefit of data collection. The data that agencies collect can also help build a robust LER for workers – workers who gained employment through skills-based practices, workers who have earned degrees, and workers who are still searching for the right career pathway to support themselves and the economy.

through combat are lost upon their exit. Workers who are disabled or neurodiverse and have worked and built skills outside of traditional pathways are also challenged in communicating their strengths to potential employers.

By shifting the focus from degrees to a more comprehensive set of skills and competencies, LERs can create a more equitable labor market, unlocking opportunities for workers who may have developed valuable skills through non-traditional paths or present as non-traditional employees and, ultimately, leading to a more diverse and skilled workforce.

New data systems that facilitate skills-based transitions can serve as the underlying infrastructure for new applications that drive career navigation. Unlike traditional resumes or degree-based assessments, LERs can capture and validate a broader range of skills acquired through various experiences, including work history, education, and even relevant hobbies. This comprehensive skill profile can make it easier for workers to identify and pursue advancement opportunities that align with their unique skill sets – opening doors to folks who don't just look like the "typical" candidate for a role.

Moreover, LERs can break down barriers between industries by focusing on transferable skills rather than industry-specific experience or credentials. This shift in focus can make it easier for workers to demonstrate their readiness for a promotion at their current employer, or to pursue opportunities in new sectors, enhancing overall labor market mobility. Workers who may have developed valuable skills in one industry can more easily demonstrate their qualifications for roles in other industries, expanding their opportunities for advancement.

IMPROVED VERIFICATION AND ALIGNMENT

The current use of degrees as proxies for general capabilities is understandable given the difficulty assessing skills during the hiring process. The status quo of hiring indicates how difficult it is to bridge this gap: background checks and resume audits that are currently standard practice do not validate skills.

Many organizations have tried company-specific skill assessments as a strategy, but few have high confidence in their ability to validate skills. Skills-based pathways—the idea of creating progression paths for workers to advance based on their skills rather than formal educational attainment—are in vogue in theory, but lacking in practice. For example, as part of the Rework America Alliance, McKinsey & Company surveyed over 400 employers on their interest in skill-based job progressions and found that though 90% were interested in building these progressions, only 50% had attempted to construct skills-based pathways—and of those, just 25% felt confident in their verification process.

To date, the market lacks knowledge of education outcomes for degreed and non-degree workers alike. While some employers have crafted their own verification mechanisms, these tend to be resource-intensive, highly specific, and difficult to replicate at scale. Through engagements on skill-based pathways, we have found that employers will develop and utilize these pathways, but that adoption requires intensive engagement between educators and employers to develop trust and understanding of the content and quality of educational offerings.

LER-based systems can dramatically reduce labor market frictions by letting workers and employers focus more on skills. However, more

granular, skills-focused worker profiles will minimally benefit employers and workers alike if employers question the quality and veracity of that information. In other words, an effective LER system lives and dies on its ability to consistently convey trusted, validated signals of workers' skills and abilities.

In theory, as a worker enters their experience into their LER—including skills, certifications, degrees, or employment—a verification process that provides third-party acknowledgment and endorsement of learning and work experience should automatically validate those entries. But in practice, it is unclear how that might work: who would set the standards for thousands of skills and credentials and oversee the accreditation process? Clearly, some new infrastructure would be needed to support robust verification of skills gained through education and training investments.

That said, some large-scale mechanisms are emerging that can bridge some of this credibility gap. The Burning Glass Institute and JFF (Jobs For the Future) have come together to establish **EQOS – Education Quality Outcomes Standards** – an effort to shed light on outcomes for existing credentials. Their work gives users the ability to see how non-degree credentials perform on metrics such as access, employment, and demand metrics. Other work in the field, like research by the **Non-Degree Credential Research Network** and datasets built by **Credential Engine**, may also be valuable additions to an LER-based system to help build employers trust in what workers report about themselves.

Indiana works toward a common language for workers and employers

The Indiana Department of Workforce Development, alongside state agencies like the Indiana Department of Education, the Office of Work-Based Learning and Apprenticeship, and others, has been working within the state on systems that support skill-based transitions. One of their focus areas has been around common language, starting with "Employability" Skills. The Department of Workforce Development describes this set of skills as, "skills for all jobseekers regardless of experience or occupation."

Indiana's efforts have been comprehensive – they included legislative language in 2019 that established the use of new skill definitions in school systems. This helps ensure that even high school graduates have developed both the skills and the language they need to be successful in the labor market. Indiana also included employers through a series of focus groups that were designed with years of research from both government and nongovernment organizations.

In addition to the collaborative effort to build a common language, Indiana has other resources, such as Skillful Indiana and Next Level Indiana that provide resources for technical assistance or funds for training so that employers, educators, and worker serving organizations can successfully implement skills-based practices in their respective fields.

LACK OF COMMON DEFINITIONS OF SKILLS AND COMPETENCIES

The current lack of standardized vocabulary for skills is detrimental to both companies and workers. Assessing and identifying the skills and competencies that workers have is difficult: workers represent their skills differently and gain experience in different ways through education and work. The lack of clarity around what skills mean and what language employers recognize makes it hard for workers to accurately convey their capabilities, thereby hampering internal career advancement and restricting movement between organizations.

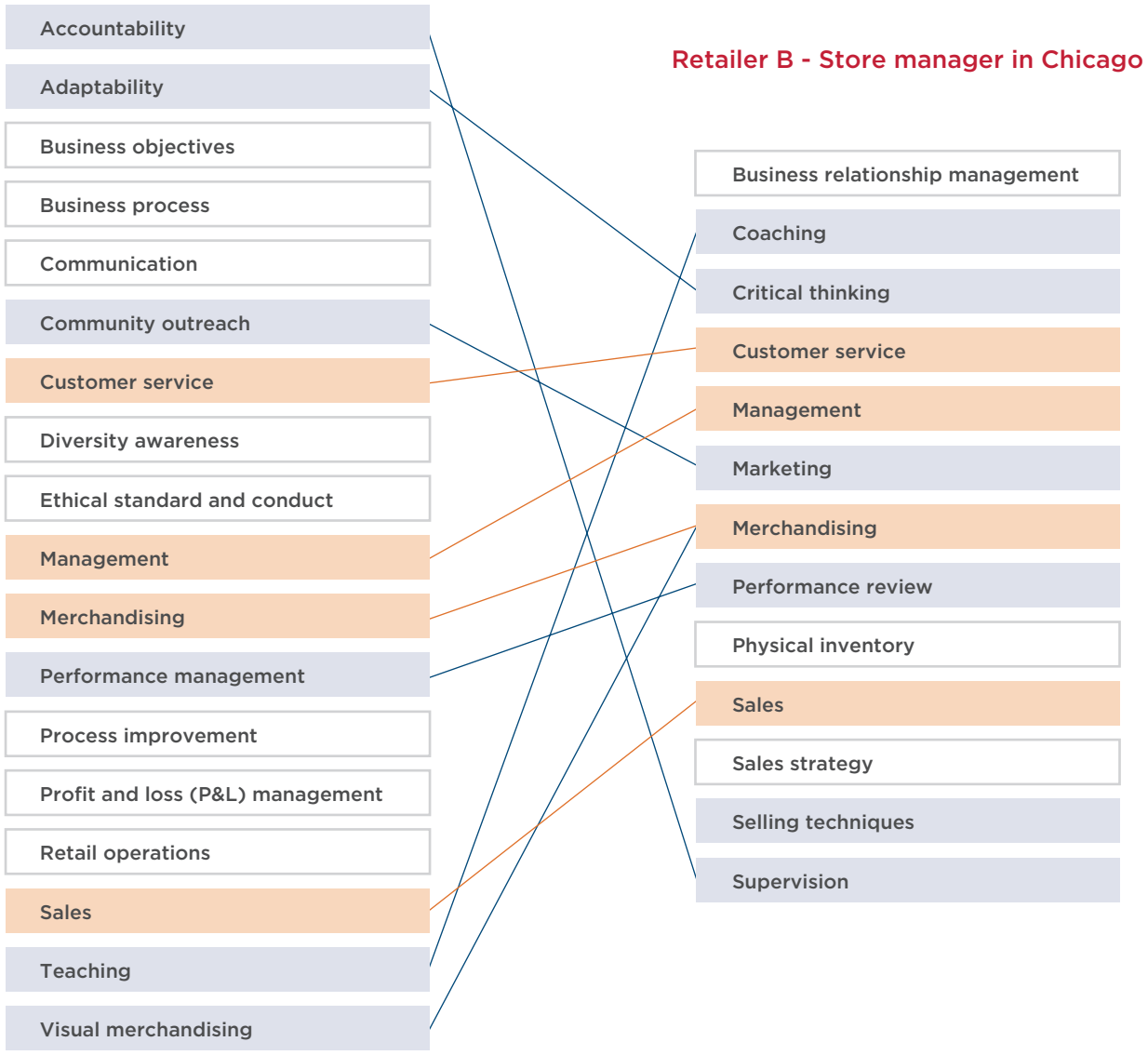
Incomplete or absent information isn't only a problem on workers' resumes. Job ads can be inscrutably opaque in what they communicate about the nature of the work and the skills required. Workers often do not know how to navigate the labor market, or how to get to jobs that they are interested in. With broad adoption of LERs, workers would be able to compare their current skill set to the needs of the job they want to attain, improving matches between workers and firms. Looking at the retail sector, for instance, how would an employee understand that the task they know as "display set-up" at their current workplace is called "merchandising" at a company they're applying to? This lack of consistency in describing skills and job requirements results in a less robust talent pool for the industry by limiting opportunities for workers and potentially causing employers to overlook qualified candidates—or even to miss them entirely.

To illustrate, consider job listings for nearly identical positions at two major retailers. These advertisements were published simultaneously (June 2023), in the same location (i.e. Chicago), for the same Store Manager role. Despite these commonalities, the skill requirements in the job descriptions varied significantly. This raises an important question: are these truly different positions, or is the disparity merely a result of inconsistent terminology? Without a standardized skills taxonomy, it's challenging to determine how closely these roles align, making it difficult for workers to assess their suitability for different positions.

LER systems would ideally help reconcile these redundant but mutually inscrutable terminologies —and guide workers toward set terms that more accurately capture their abilities. One way it can do this is simply by standardizing the skills listed in LER templates, which ideally would be mirrored in job ads linked to the system. Setting the options for listed skills based on a standardized industry-wide taxonomy, the system would help unify terminology across employers, industries, and geographies.

By adopting LERs, employers would likely standardize large portions of their application process to match how workers are uploading their career histories. Internally, LERs will help employers clarify what skills are necessary for a role and map new pathways that unlock career opportunities for their employees and prioritize development.

Retailer A - Store manager in Chicago



Same skill in both roles

Similar skill in each role

No overlap

The Vision of the Skills-Based Economy: The Micro and Macro-Economic Impacts of an LER System

These effects become much more powerful as the scale of LER adoption expands. Verification and induced standardization will ultimately enable firms to hire for skills rather than proxy signals like degrees, unlocking opportunities that millions of workers have been blocked from due to incomplete or absent information about their abilities—and making it easier for their skills to be recognized and sought after for roles and in industries beyond their existing fields.

MARKET-BASED VERIFICATION

As mentioned earlier, the lynchpin of a successful LER platform is a credible mechanism for verifying skills and abilities—something that is currently sorely lacking for nearly everything except college degrees. But it's possible that even without a formal, top-down solution to the verification problem, the LER system could generate market-based evaluations of certain credentials by analyzing outcomes. For example, if there are five certification programs for a nursing occupation and aggregate LER data show a consistent preference among employers for candidates with only two of those five, other employers may infer that those two are superior. Beyond the benefits that stem from micro-level interactions between employers and workers, however, LER systems also could create macro-level feedback loops that compound many of the efficiencies created by LER adoption, as well as generating opportunities to extract broader labor-market insights.

MARKET-DRIVEN STANDARDIZATION OF SKILLS VOCABULARY

A robust LER-based data system can promote standardization of skills and abilities—particularly those acquired via non-traditional routes. The first iteration of this convergence will occur as LER templates limit the options for describing specific skills and laying out detailed definitions of each. As employers learn from LERs what terms to target in recruitment they will, over time, tailor job ads and role requirements to those skills—further entrenching the use of these terms.

SKILLS-BASED CAREER PATHWAYS ANALYSIS

By allowing users to analyze existing and potentially viable career transition pathways, an LER-based platform can help employers pinpoint untapped talent while allowing workers to more effectively plan their professional development.

Recent work through the Burning Glass Institute has shown how skills can also be leveraged to identify untapped talent pools. In BGI's work with the Greater Houston Partnership and Upskill Houston to identify, validate, and implement skills-based progression pathways, we analyzed job postings and workers' career histories to identify the skills overlap between roles and common transitions. This analysis aimed to identify existing patterns of job-to-job transitions and highlight pathways that are underleveraged but could become more frequent due to similarity in required skills. We found instances of high skill overlap but a low number of transitions – a signal that a given transition may be overlooked.

A robust LER-based data platform can ingest this type of pathway analysis and build more individually specific pathway recommendations. As an enhanced system drives tool development it can help draw pathways for workers that suggest viable but less familiar job transitions while also highlighting any additional skills needed to prepare for these roles. It can also flag what skills are emerging within and across industries and geographies where said skills are in high demand, and indicate which skills are most in-demand.

Rapid Reskill Transitions	Proven Transitions	Untapped Talent
Workers historically make these transitions - these pathways offer low risk training opportunities.	**Workers make these transitions and they have high overlap in the skills necessary for each role - there is opportunity for these pathways to be strengthened.**	**We see high skill similarities between these roles, but fewer transitions occurring - this is where hidden talent lies and LERs will provide the most value.**

GENERATE EMPLOYER PROFILES

A robust LER system could aggregate and analyze data from current and former employees' LERs to create comprehensive employer profiles that go beyond basic information like company size and industry, incorporating metrics on career progression opportunities and skill development programs. These profiles would provide workers with valuable insights for career planning, allowing them to make more informed decisions about potential employers based on factors that align with their personal and professional goals.

IDENTIFY SKILL GAPS

A large-scale LER system, when integrated with job market data, could provide a comprehensive view of skill supply and demand across various industries and regions. By analyzing the skills listed in workers' LERs and comparing them to the skills requested in job ads, the system could flag mismatches at both micro and macro levels.

At a systemic level, this analysis could reveal broad trends in skill gaps, showing where the workforce's current skillset falls short of market demands. This information would be invaluable for policymakers in crafting targeted workforce development initiatives, for educational institutions in designing relevant curricula, and for businesses in planning their hiring and training strategies. The system could also predict future skill gaps by analyzing emerging trends in job requirements, allowing for proactive measures to address potential shortages before they become critical.

FLAG EMERGING SKILL TRENDS

An LER system with a large user base could act as an early alert system for emerging skill trends. By continuously synthesizing the skills added to LERs and those listed in job postings, the system could identify new skills gaining traction across different industries and regions.

At a macro level, it could highlight broad shifts in skill requirements across entire industries, such as the increasing importance of data analysis skills across various sectors. At a more granular level, it could pinpoint specific emerging skills within roles or industries. The system could also track the geographic spread of skill trends, identifying emerging hubs for certain skills or technologies. This information would be crucial for workers planning their skill development, for educators designing forward-looking curricula, and for policymakers aiming to position their regions competitively in the evolving job market.

REGIONAL ECONOMIC INDICATORS

By aggregating data from individual LERs within specific regions, comprehensive LER system could serve as a powerful tool for mapping the skills landscape across different geographies, providing valuable insights into regional economic health and potential. For example, the system could create detailed analysis of regional comparative advantages to guide workforce investments to support emerging industries, or to attract business in search of talent to the local economy. These types of analyses can help inform business collectives, economic development organizations, and state and local government on how they can build and structure investments in the future economy of their building data informed strategies based on the experiences of workers in their local communities.

Making LERs a Reality

The current labor market faces a paradox. While skills-based hiring shows promise for improving job matching and retention based on more holistic criteria, its implementation remains limited. This disconnects stems from a fundamental flaw in our workforce infrastructure: the lack of a standardized, trusted system for articulating, validating, and recognizing workers' skills. Learning and Employment Records (LERs) offer a promising fix to this problem. These digital records could provide a common language for skills across industries, enabling workers to better showcase their abilities and employers to more accurately identify talent. However, the path to widespread LER adoption faces significant obstacles. Two in particular must be overcome: establishing a robust skill verification process to build employer trust, and achieving the scale necessary for true interoperability and network effects.

If these challenges can be met, the potential benefits of a well-functioning LER system are profound. Beyond improving individual job matches, LERs could drive macro-level efficiencies in the labor market. They could facilitate the creation of a market-driven common language for skills, illuminate career pathways across industries, help identify regional skill gaps, and flag emerging skill trends. This trove of data could inform decisions at every level—from individual career planning to corporate hiring strategies to government policymaking.

By taking certain concrete steps, we can build a more dynamic, equitable, and efficient labor market that benefits workers, employers, and communities alike. The federal government can invest in broadband access and data privacy, establish data collection guidance, and provide technical assistance for skills-based practices. State and local governments, meanwhile, can implement skills-based hiring among public sector employers in their regions and offer incentives and support for employers adopting skills-based practices. Finally, educators and worker advocates can train workers on using data systems and highlight their potential for career growth while fostering greater digital literacy.

Collectively, these efforts would lay critical groundwork necessary for the emergence of broadly-adopted, highly credible LERs, with the potential to create transformational opportunities for workers and employers nationwide.

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