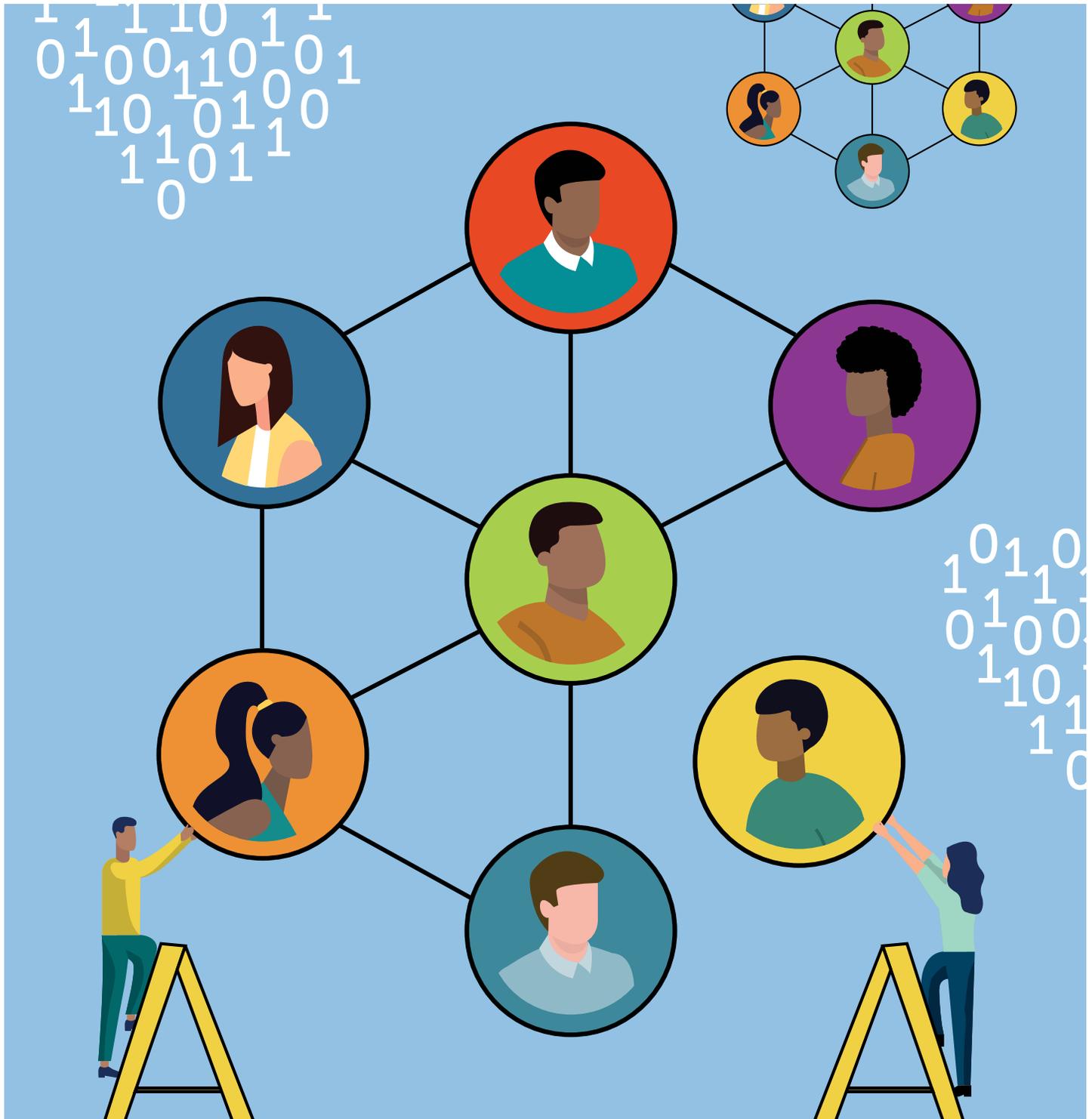


Building Networks for Frontline Talent Development

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A research project by Digital Promise, funding provided by Walmart

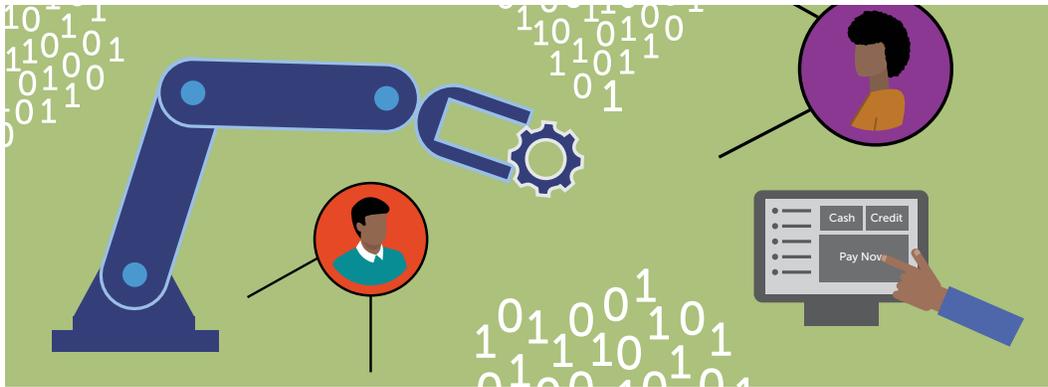


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Introduction

Frontline workers, from medical technicians and retail associates to fast-food workers and delivery drivers, face unparalleled challenges when it comes to their future of work. Prior to COVID-19, workers with routine activities, such as cashiers or laborers, were at risk for job displacement due to changes in automation and artificial intelligence ([Muro, Maxim, & Whiton, 2019](#))¹. But the global pandemic has exacerbated uncertainty for thousands of workers across frontline sectors like healthcare, retail, restaurants, hospitality, manufacturing, and construction, who now face increased risk of infection, job instability, and even unemployment. Now more than ever, frontline workers must be able to easily demonstrate and leverage their skills to secure employment and advance their careers.

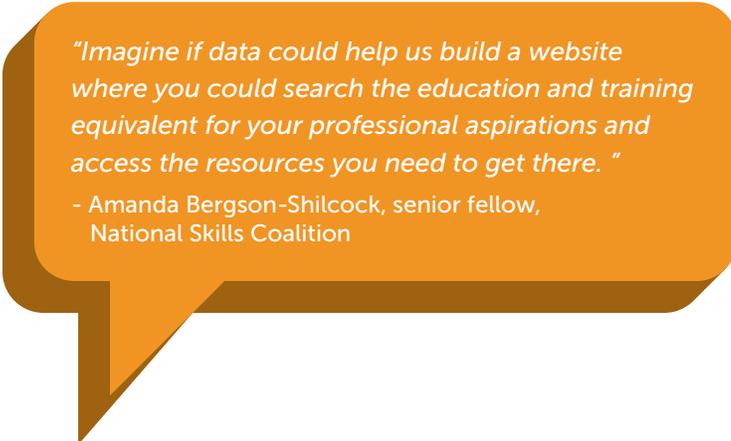
Workers are not the only groups affected by these disruptive factors to the workforce ecosystem. In recent years, employers have struggled to fill an estimated 7 million jobs due to the [growing digital skills gap](#) and a lack of coordination across education, training, and credentialing providers.² Direct service providers such as nonprofit and publicly-funded adult education and career training agencies, have also expressed limitations in their capacity to track job placement and earnings data, and to measure long-term impact on worker outcomes.

Could data interoperability—the ability to exchange information between people and systems in a seamless, safe, and controlled way—be a solution for frontline workers?

Digital Promise tackles this question by amplifying diverse perspectives and experiences across the adult learning ecosystem. We connected with more than 75 people in the field—from individual workers and local providers to large-scale employers and government agencies—to find out what it would take for each of these stakeholders to collectively adopt a **more collaborative, data-driven, and worker-centered approach** to advance the frontline workforce.

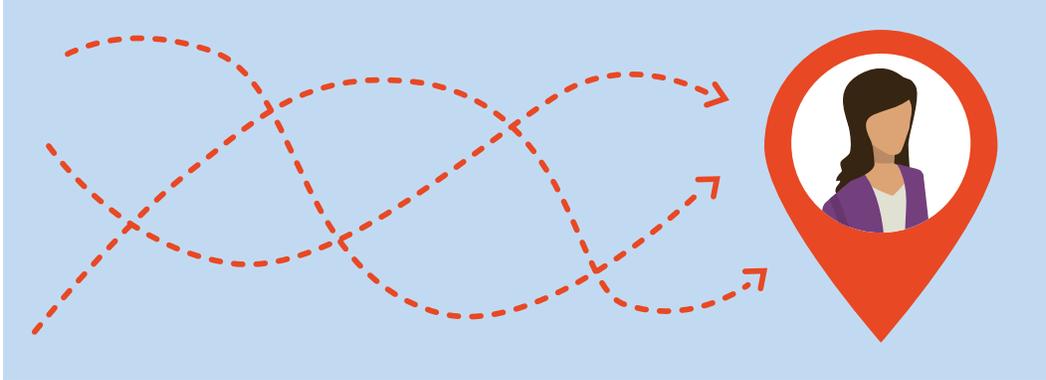
We learned that data interoperability is an integral part of the solution, but, in and of itself, will not solve the challenge of connecting talent to upskilling opportunities. The key is to focus on building interoperable, data- *and* human-driven networks.

This report explores what it takes to spur a movement toward more effective collaboration and data sharing across the workforce ecosystem and provides replicable strategies for building cross-stakeholder networks from communities that are already leading the way. Most importantly, it places frontline workers at the center of the conversation about their own future of work.



“Imagine if data could help us build a website where you could search the education and training equivalent for your professional aspirations and access the resources you need to get there.”

- Amanda Bergson-Shilcock, senior fellow,
National Skills Coalition



How Did We Get Here?

In our 2019 landscape [report](#)³, we identified stakeholders from the learning ecosystem that serves the frontline workforce, including employers, government agencies, adult education and workforce providers, and higher education institutions. As part of this work, we explored how these institutions used worker data to streamline services, improve training, and advance opportunities for workers in sectors such as healthcare, retail, restaurants, hospitality, and manufacturing. We learned that the ecosystem is complex and siloed, and it removes agency from the worker by taking data without returning any value. Further, although many of the same data types are collected across agencies and stakeholders, much of it is duplicative and data are rarely used to inform program decisions or to understand collective impact and long-term outcomes.

As a result, we identified six key recommendations to promote a more data-driven, collaborative, and frontline worker-centered learning ecosystem:

- 1 create awareness and demand for data interoperability among stakeholders
- 2 ensure equity and inclusion for worker/learners through access
- 3 create data-sharing resources
- 4 advocate for data standards
- 5 advocate for policies and initiatives
- 6 spur the creation of technology systems that enable data sharing

Our most recent efforts focused on the first recommendation: increase collective demand for data-sharing practices that drive opportunities for frontline workers.

Our goal was to examine practices that work and secure stakeholder commitment to systems and policies that enable data interoperability in the frontline learning ecosystem. To meet this goal, we designed a multifaceted research project that addressed the following research questions:

1 What would it take for stakeholders in the frontline workforce to adopt collaborative, user-centered, data-sharing practices?

2 Which incentives spur demand for data interoperability across adult education and workforce development partners?

3 Who are the leading influencers and entities that can advance data interoperability in frontline industries?

Methodology

Digital Promise designed a qualitative research framework driven by inclusivity and equity to conduct data collection, thematic analysis, and collaborative interpretation aligned with our research questions. We developed original interview and case study protocols tailored to each of the major stakeholder groups previously identified in our 2019 findings (see: participants). Data collection and analysis occurred concurrently from August 2019 through January 2020.

With participant permission, we recorded each interview and case study discussion via [Zoom](#) audio, de-identified individual-level data, and uploaded the recording to [Box](#), a secure virtual location that is accessible only to the project's researchers. Audio was out-sourced to [Rev](#) and [Transcribeme](#) for transcription, then uploaded to [Dedoose](#), a software package for qualitative and mixed methods research that allowed the team to code transcripts, record memos, and analyze emergent themes. Drawing on learnings from the [2019 research project](#), the team developed a revised codebook aligned to the new research questions. Each transcript was coded by two researchers for inter-rater reliability.

After coding was complete, we conducted a three-part thematic analysis of the qualitative data to search for convergent themes, narratives, and contextual relationships. We analyzed stakeholder-level excerpts according to the following categories: barriers, benefits, learnings from the field, technology, drivers of change, and readiness to spur demand. Next, we developed stakeholder-level memos to synthesize the findings by stakeholder and theme. Finally, we conducted a cross-stakeholder analysis to highlight shared incentives and challenges across stakeholder groups in order to devise a strategic plan. See below for samples of our analysis to co-interpret and make sense of the themes.

Participants

To select interview and case study participants for the project, we employed Maxwell’s⁴ method of purposeful selection, a strategy in which stakeholders are selected deliberately in order to provide information that cannot be collected by random sampling methods. The research team chose to implement the purposeful selection strategy to ensure participants represent diverse experiences and perspectives across the adult learning ecosystem. Researchers first defined the dimensions of variation in the stakeholder groups that were most relevant to data interoperability as it relates to frontline worker advancement (see Table 1). For the purpose of this study, dimensions included: demographic and background data, industry, geographic area, stakeholder needs, resource availability, relationship to Digital Promise, and knowledge related to data interoperability in the adult learning sphere serving frontline workers. It is important to note that some participants were also selected through convenience sampling, or sampling through existing connections, given Digital Promise’s existing network and relationships in the field.

Between August 2019 and December 2019, we conducted individual interviews with 46 individuals (see Table 2). We also conducted case studies in four communities that exemplify ways that multiple stakeholders collaborate to support career advancement for frontline workers through systematized data sharing. Frontline workers were included in all of the case studies, with the exception of Nashville, Tennessee (see Table 3).

Table 1 Stakeholder Definitions

Stakeholder group	Definition
Frontline workers	employees in service industries, such as retail, healthcare, restaurants, hospitality, and manufacturing and/or adult learners interested in these careers
Employers	employers in service industries, such as retail, healthcare, restaurants, hospitality, and manufacturing
Government and Public Institutions	representatives from city, state, and federal levels of government, including publicly-funded adult education programs and career service agencies
Providers	higher education institutions, including community colleges, and nonprofit adult education and career service providers
Ecosystem drivers	researchers, funders, advocacy, and/or consultancy groups in the adult education and workforce development space that facilitate adult learner success

Table 2 Research Participants by Role

Role	Interview Participants	Focus Group Participants	Total Participants
Frontline Workers	7	5	8*
Employers	5	2	7
Higher Education Providers	6	4	10
Adult Education Providers	7	2	9
Government Agencies and Public Institutions	5	1	6
Career Services Providers	6	10	16
Ecosystem Drivers	10	6	16

*Four frontline workers who participated in focus groups also participated in individual interviews.

Table 3 Focus Group Participants by Location

	Taos, New Mexico	Central Susquehanna, Pennsylvania	Greater Cincinnati Region, Ohio/ Northern Kentucky	Nashville, Tennessee
Number of focus group participants	10	7	8	3

Thematic Analysis

We conducted a three-part thematic analysis of the qualitative data. First, we pulled coded excerpts for each stakeholder group from Dedoose according to the following categories: incentives, challenges, learnings from the field, technology, drivers of change, and readiness to spur demand. During this process, we analyzed more than 2,000 excerpts and identified descriptive quotes to support our analysis. Next, we developed stakeholder-level memos to synthesize the findings by stakeholder and theme. The four categories that emerged most often included: barriers, benefits, drivers of change, and readiness to spur demand. Finally, we conducted a cross-stakeholder analysis to highlight shared incentives and challenges across stakeholder groups in order to devise a strategic plan.

We put together a diverse expert advisory committee to co-interpret stakeholder-level memos by theme and develop strategies to enable effective collaboration and data-sharing practices across the adult learning ecosystem, with and for the benefit of frontline workers.



Key Findings

As a result of this research, we learned that an individual leader can spark an idea or curate a dataset, but it takes a community of stakeholders — including workers — to generate a movement toward real, measurable impact for all involved. Case study findings were particularly important in illustrating what successful cross-sector collaboration and data sharing can look like.

Drawing on the original set of research questions, the following section explores more closely what it takes to build powerful, data-driven, worker-centered ecosystems, and makes clear why stakeholder participation, including workers, is so critical moving forward.

The first set of findings, **stakeholder incentives**, identifies the motivations for each stakeholder group, and articulates what would incentivize their involvement in a collective impact effort. The second set of findings identifies **drivers of change**, including workers who are directly impacted, and outlines their potential role in this effort. Lastly, the **network-building strategies** synthesizes a set of actionable steps to help communities get started, based on case study findings.

Explore these findings by category: stakeholder incentives, drivers of change, and network-building strategies.

Stakeholder Incentives

As a fundamental part of this study, we identified what would incentivize each of the following stakeholder groups to participate in a collaborative, data-driven, worker-centered ecosystem: frontline workers, employers, education and career providers, and government agencies. Explore stakeholder incentives to gain insight into their unique perspectives.

Frontline workers

Nearly all of the frontline workers we spoke to identified **income mobility**—their ability to earn more money to provide for themselves and their families—as the number one factor driving their decision to upskill. Along these lines, workers shared that **contextualized learning opportunities** that incorporate pay—such as internships, management workshops, and hands-on practice—were the most valuable for competency and skill development. When asked about leveraging digital tools and platforms, such as [LinkedIn](#), [digital badges](#) or [micro-credentials](#), or [comprehensive learner records](#) to demonstrate and share their skills and experiences, workers we interviewed showed interest in this potential, but overall felt unequipped for **participation in a data-driven workforce**. Notably, workers in health-care settings indicated that a lack of digital skills often prevented them from conducting an extensive job search, creating detailed profiles for online applications, and uploading supporting transcripts, certifications, or credentials. Moreover, workers in the retail industry noted the acquisition of professional skills, such as interpersonal and management skills, that were not represented on currently available certifications and degrees and therefore difficult to demonstrate to potential employers. Most of the workers we spoke to felt disconnected from the systems, programs, and even resources like tuition reimbursement or state grant support, that are designed to support their advancement. Instead, they relied primarily on friends, colleagues, and family members to learn about education and training programs and to explore career growth opportunities.

"I wouldn't have been able to go back to school without state grants. Most people who are struggling don't even know that these kinds of programs and services are available."

- Holly, licensed practical nurse, Maine

"I've developed a lot of skills in retail jobs that I didn't even know were skills. I don't want to forget the small things I do every day that could help me get another job later."

- Connor, retail worker, Massachusetts

"In retail, there aren't any certifications. It's more about your skills and experience. But how do you show that?"

- Allison, floral designer, retail, Massachusetts

"A lot of time is wasted on job applications, because every time you apply to a new store, you have to type in the same things you just did for the last store. This is a challenge for most of us who are trying to advance their careers while working full time."

- Connor, retail worker, Massachusetts

"I completed an internship. Then I got hired for a part-time position, which led to getting hired full time."

- Angela, social worker, Ohio

Employers

Employers identified the need to rapidly adapt and grow their business models as **technological advancements** transform the way they operate and deliver services. Employer representatives in retail and restaurants pointed to **automated customer services** like online ordering, digital pickup and delivery requests, and processing returns as examples of digital transformation. Most pressing is the need to hire and train staff who can readily apply digital skills in tandem with core professional skills, like customer service, teamwork, and management. For this reason, employers demonstrated considerable incentive to evolve hiring practices, support skill acquisition, and **increase retention** through workplace training. Most employers expressed interest in developing better systems to track employee skills, competencies, and credentials and to match existing and new talent to horizontal and vertical career growth opportunities.

"Walmart has the potential to increase associate development, using capabilities like badging, credentialing, and blockchain technology."

- Josh Johnson, sr director, learning product owner, Walmart US People Experience

"Besides speaking with previous employers or personal references, you take potential employees at their word for what they share about their skills and experience."

- Kyle Goslin, production supervisor, Fresenius Kabi, Buffalo, New York

"Restaurants need to be able to leverage technology, because that's how the business is running now. Before we were cooking food and handing it to the guests. Now it's about online ordering and delivery services like Caviar or Seamless. All staff needs to be able to use the POS system alongside apps, alongside Slack."

- Joe Price, executive sous chef, Flour Bakery + Cafe, Boston, Massachusetts

"Through our talent pipeline management work, we've seen that employers are ready and willing to revise job postings, use a shared language, and set clear expectations to get better talent."

- Joshua Westfall, director, policy & programs, U S Chamber of Commerce Foundation

"In the service industry and hospitality industry, nothing is going to replace the face to face. But how do you show those skills in a resume?"

- Thomas Whelan, director of banquets, Levy Convention Centers

Education and Career Service Providers

Education and career service providers that we spoke to were driven to meet **learner needs** and committed to preparing people for sustainable wage careers. Providers shared limitations in their capacity to collect and track longitudinal data outcomes for participants, including those who exited before completion, leaving them unable to evaluate learner needs and program impact. While meeting learner needs often pushed providers to establish informal partnerships with local industry employers, higher education institutions, and nonprofit organizations, **external funding** was often the critical factor to securing partnerships through MOUs and propelling data sharing practices. Most providers indicated the funding models dictated what kind of data were collected, reported, and shared, and that their data were rarely used to evaluate long-term impact.

"Everybody is worried about counting their own marbles. Collaboration is something that people like to talk about, but the way most programs are funded does not necessarily incentivize or promote it."

- Carmine Stewart, vice president of programming, Seeds of Literacy, Cleveland, Ohio

"We have the training and employers have the workers, but we need to have a shared commitment to worker advancement."

- Christian Valdez, Northern California regional coordinator, Building Skills Partnership, California

"How do we credit a 40-year-old adult for the 22 years of their life since high school graduation? What if we had a way to document and share that information?"

- Frank Gerdeman, director of adult education, Lake Tahoe Community College, California

"Adult education students have the power to change the system. I see students' demands being heard by teachers. Teachers are ultimately student advocates."

- Kathy Harris, director, Learning Web, Portland State University

Government Agencies and Public Institutions

City government leaders and publicly-funded adult education institutions from Madison, Philadelphia, rural Maine, and New York City, were incentivized to **allocate resources more effectively** and **streamline service provision** for greater community impact. Many indicated that interoperable data systems supported their capacity to align and coordinate services across agencies and departments. Some government representatives had taken steps to pull data from multiple sources to understand community needs and allocate funding or programming based on disparate datasets. Others looked forward to the benefit of a learner-facing platform or tool to empower individuals to make their own decisions about their future. Notably, we interviewed one representative from the U.S. Department of Education who demonstrated incentive to coordinate interoperability across employers and educational institutions to more effectively connect learning and earning.

"Our Career Link system exists to connect people to available jobs. We are here to help you get you where you need to be."

- Naomie Nyanungo, director of professional development & community engagement, Philadelphia Office of Adult Education

"Working with partner organizations helps us understand how to best design programs, and recruit and retain clients. It's about asking the individual what they need and sharing that information across organizations."

- Pat Hughes, director of adult education, Regional School Unit 3, rural Waldo County, Maine

"We're working very closely with the city initiative on violence prevention. We look at the data, try and predict where violence may occur based on existing data patterns, and target educational and career services in those areas to offer opportunities for people in heavily impacted communities."

- Hillary Shayne, manager of training initiatives, Philadelphia Works

"We have a big education blockchain project underway [that] allows individuals to re-bundle their educational experience and demonstrate the skills that they've earned across a number of different learning domains. It also works as a signaling mechanism so that employers can hire based on skills, that educational institutions can recruit students in a more equitable way."

- Sharon Leu, senior policy advisor, higher education innovation, Office of Education Technology, U S Department of Education

"Having a shared system is a way to ensure continuity of service provision and better coordination between all of the people who are working to support students."

- Ben Meade, executive director of strategy and accountability, District 79 NYC Department of Education

Drivers of Change

Our research indicates that each stakeholder group plays a distinctly critical role in the collective effort to promote a data-driven, worker-centered ecosystem. In three of the four case studies, **employers generated demand for community change**, both directly, as in the case of local hospitals in Central Pennsylvania, and indirectly, as in the case of industry closures in Taos, New Mexico. But employers were not able to solve the challenge of finding and retaining talent without the **support of direct service providers** in their communities. Similarly, providers were not able to meet employer demands and provide relevant training or instruction without the **support of public and/or private funding**. Most importantly, many of the workers we interviewed were not able to access and navigate relevant training and growth opportunities without available **information, mentorship, and public services**.

Building Networks for Frontline Talent Development



This strategic model illustrates how stakeholder groups can work together to participate in a meaningful and mutually beneficial data-driven ecosystem.

Mission

Design systems that are worker-centric and coordinate services to ensure greater impact.



Vision



Workers can access and navigate upskilling opportunities to achieve income mobility.



Employers can systematize their recruitment, hiring, and training practices to expand and retain talent.



Providers can leverage data to establish partnerships and coordinate and deliver services.



Funders and government organizations can make more informed investment decisions.

Phase 1: Assess Individual Needs & Capacity



Employers

- Identify education and career service providers to share needs
- Articulate skills & competencies needed for workforce and share with current and future workers
- Engage workers directly to understand their needs and identify what changes need to be made to programming and services



Providers

- Engage workers directly to understand their needs
- Identify what changes need to be made to programming and services and assess capacity to make those changes
- Initiate or build on cross-sector partnerships with local providers and employers in your region to coordinate need-based service provision and supports



Frontline Workers

- Take time to identify all of your skills, competencies, training, certifications, degrees, experience, and/or credentials and compile a comprehensive record in a digital format. Can this information be easily updated and shared?
- Talk to a mentor, friend, or visit a career one stop in person or online, such as a local American Job Center, to discuss your professional goals and access educational and workforce development resources.
- Share your needs with providers and employers and ask about available resources. Ask about paid training, tuition or transportation assistance, flexible scheduling, and other supportive services to help you work toward your goals.



Phase 2: Create Cross-Sector Networks for Data-Sharing and Collaboration



Employers

- Co-design recruitment, hiring, and upskilling initiatives with education and workforce providers in your region
- Invest in employees' digital skills development, track their competencies in a portable format such as digital badges and micro-credentials, and create clear pathways for income mobility, including incumbent women and employees of color
- Collect longitudinal data about individual worker skill and competency development and wage growth

Providers

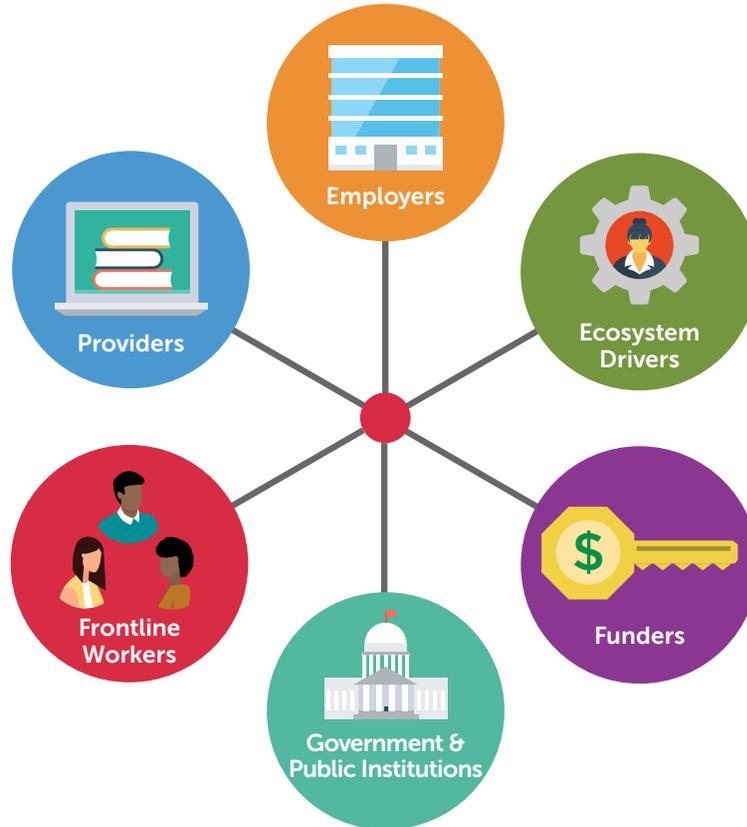
- Identify a shared challenge, shared solutions, and a shared deadline with local employers, workers, partner organizations, and other key stakeholders
- Explore ways to align data systems and resources, including personnel and disparate funding streams, for greater impact
- Track short-term and long-term outcomes in collaboration with employers
- Integrate digital literacy and skills development into programs where possible
- Make program adjustments according to data

Frontline Workers

- Develop career goals and identify a pathway in collaboration with your employer and/or continuing education provider
- Access and navigate opportunities to learn new skills, including digital skills, and keep track of your progress
- Discover opportunities to demonstrate and articulate competencies to employers, such as digital badges or micro-credentials
- Co-design solutions for expanding access to local talent pipelines and communicate worker needs



Phase 3: Evaluate Collective Impact



Employers

- Adapt and grow business in the digital age
- Quickly recruit workers with needed skills
- Reduce turnover & improve workplace culture
- Save resources by re-skilling and promoting incumbent employees

Providers

- Improve program completion and job placement rates
- Increase relevance of programming through cross-sector collaboration

Frontline Workers

- Increase income mobility
- Learn to leverage your data — earn and demonstrate in-demand skills — to continuously adapt to workforce changes

Government & Public Institutions

- Require longitudinal data collection and reporting to measure long-term impact of workforce initiatives on worker mobility, such as income mobility

Funders

- Design more equitable and flexible funding models that allow for interoperable data systems development and maintenance

Ecosystem Drivers

- Advocate for policy investment in digital literacy and access

Network-building Strategies

From small, rural towns to large metropolitans, communities across the nation demonstrated that shared commitment leads to powerful solutions. Through several case studies, we identified a set of actionable strategies that each community used to build networks and solve workforce needs in their region. To learn more about how each community implemented these strategies, see Regional Design Solutions.



1 Collect postsecondary education and workforce data in a region.

Our case study communities thought about data regionally and cross-organizationally, not just at the institutional level, to enable workers to access resources and upskill in their careers, create personalized pathways, and evaluate and improve programs and services.



2 Establish a coalition of key stakeholder groups across the region, including workers.

These communities invited local drivers of change, including employers, government representatives, education and workforce providers, funders, and workers, to review and interpret the data and make data-informed decisions as a group.



Key insight

Address systemic challenges that a single organization could not solve independently, and establish cross-organization and cross-sector partnerships to connect workers to gainful employment opportunities.



Key insight

Nominate a lead organization or individual to research, coordinate, and facilitate collective efforts across multiple organizations and establish communication norms and expectations.



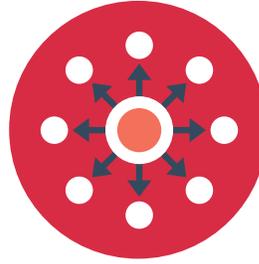
3 Identify a shared challenge, shared solution(s), and a shared deadline.

Co-develop and commit to a shared vision with individuals who are most directly impacted, including workers in your community. Develop collective strategies on individual projects to advance the work of the entire community.



Key insight

Identify an external deadline, such as a pitch or shared funding opportunity, such as the Minds that Move Us challenge, to ensure the work is prioritized, actionable, and gets done.



4 Align resources for greater impact.

Explore ways to align resources, including personnel and disparate funding streams, for greater community impact.



Key insight

Allow for flexible funding and invest in shared systems. For example, each organization could contribute a small amount to invest in shared programs, technology, and interoperable data-tracking systems.



5 Tell the whole story, over time.

Create intermediate goals and short-term, measurable outcomes. In addition, track data longitudinally to understand the long-term impact on workers in the community, in terms of talent development and income mobility.



Key insight

Be willing to shift focus and recognize when duplicative efforts may be doing more harm than good.

Regional Design Solutions

Learn more about how these four communities have leveraged cross-sector partnerships to coordinate efforts and create opportunities with and for workers. Their work exemplifies how regional networks benefit from including workers in designing solutions to ensure greater impact.



Economic Mobility Pathways in Cincinnati and Northern, Kentucky

It takes less than 5 minutes to drive from Covington, Kentucky to Cincinnati, Ohio. Yet, when it comes to serving adult learners across the region, the cities have historically operated under disparate systems across two different states, while working to serve a shared community, especially Black and African-American, Latinx, and adults with limited financial resources and postsecondary education.

Rural Healthcare Preparation Pipeline in Central Pennsylvania

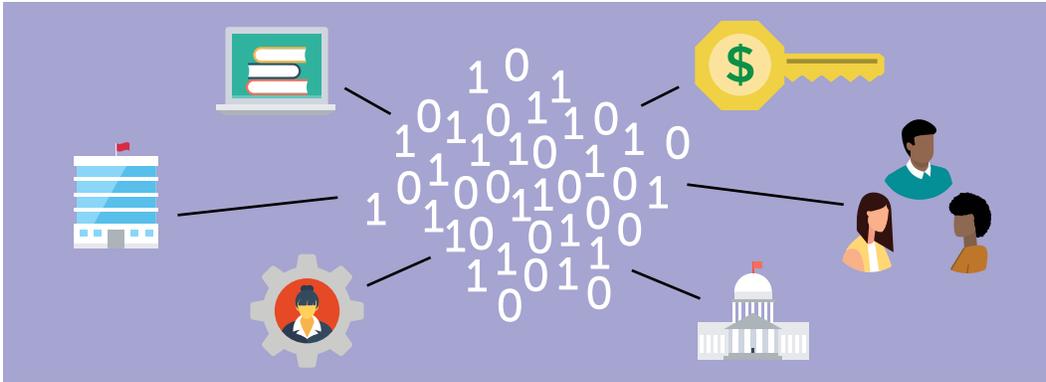
When local employers announced a critical shortage of qualified healthcare workers, leaders across programs at the Central Susquehanna Intermediate Unit came together to address the challenge with a collaborative mindset and dataset.

Cross-sector Business Incubator in Taos, New Mexico

Developed by the University of New Mexico-Taos Education and Career Center and local business partners, the HIVE is an innovative and inclusive co-working space and business incubator designed to accelerate innovation, collaboration, and opportunity for the next generation of leaders, including the growing number of Latinx and Native Americans who are interested in technology or entrepreneurship.

Urban Adult Literacy Collaboration in Nashville

What started as a learning group of local adult literacy providers convened by the Nashville Public Library has since become the Adult Education Collective Impact (AECI), a collaborative of 20 partner organizations committed to improving adult education and literacy rates in the region.



Conclusion

At the outset of this study, we aimed to generate demand for a more collaborative, data-driven, and worker-centered ecosystem. Our research revealed that nearly all of the key stakeholder groups, from direct service providers to government agencies and employers, viewed data sharing as a key component of their ability to improve service provision and employment opportunities for frontline workers. But competing priorities, siloed thinking, unclear incentives, privacy concerns, and inequitable access to resources often prevented stakeholders from taking real action toward data interoperability. Moreover, the majority of workers felt unprepared to participate in a data-driven workforce and disconnected from the initiatives designed to advance their careers.

While data interoperability was widely recognized as a powerful tool and outcome, it was not seen as a standalone solution to the siloed workforce system, particularly for providers and workers who do not have the digital, human, and capital resources to fully participate in a data-driven system alongside larger entities like employers and government agencies. Workers from healthcare and retail acknowledged that their lack of digital skills often prevented them from tracking and sharing their skills and advancing their careers. Moreover, the coronavirus pandemic has pushed us to take a revelatory look at the critical roles, risks, and skill sets of our frontline workforce. Frontline workers now face increased risk for infection or unemployment. In order to thrive, they must be able to easily access upskilling opportunities and communicate their skills to secure employment and advance their careers.

“There are many services available for workforce development, but no funding source focused on digital literacy or access to digital technology.”

- Angela Siefer, executive director, National Digital Inclusion Alliance

Overall, the workers we interviewed did not view their data as valuable or see the connection between their current skill sets and potential career pathways. These findings are in line with [National Skills Coalition’s](#) new [report](#)⁵ and digital skills series, highlighting that an estimated one-third of U.S. workers have low to no digital skills, especially in frontline sectors like [healthcare](#)⁶, [retail](#)⁷, [hospitality](#)⁸, and [manufacturing](#)⁹.

Our research indicates that while each stakeholder plays a critical role in connecting frontline talent to development, the effort must be transformative, dynamic, and multi-directional in order to drive change across communities. Most critically, the stakes must be clear, meaningful, and high—and the resources must be available and continuous—for each of the stakeholders to get involved and work together to advance workforce opportunities in frontline sectors. Data interoperability has the potential to connect the disparate dots across this ecosystem, but that collective investment in developing systems and standards, and maintaining them, is critical to ensuring that this work is scalable and sustainable. Notably, we found that employers were among the most innovative in their steps toward integrating digital platforms and training programs to develop and track workers' skills, showing promise for industries' ability to participate in future cross-sector initiatives. Further, as FSG's (2020) [report](#)¹⁰ demonstrates, employers who innovate to retain, develop, and advance the growing number of frontline employees of color strengthen their business and gain competitive advantages.



Next Steps

Achieving data interoperability without the inclusion of the worker is not possible—or even beneficial—to the workforce system at large. Our research makes clear that a single organization or entity cannot fully understand the needs and interests of a community or employer. Rather, stakeholders must come together to share needs and design collective,

“When it comes to data interoperability, you have to create systems that people can participate in. Creating a more participatory environment of data collection helps everything. It creates returns everywhere.”

- Samantha Schartman-Cyck, chief executive officer, Connected Insights

collaborative, and data-driven solutions with workers.

Collective impact efforts such as [Digital US](#), a coalition of national stakeholders committed to building a [digitally resilient](#) workforce, indicate that a network approach is powerful, achievable, and leads to impact at multiple levels.

Today, leaders in government, education, and industry are exploring technology-based

solutions to more efficiently match individual skill sets to opportunities, such as digitally-referenceable career standards, interoperable data systems, [open job data resources](#), and the adoption of [interoperable learning records](#) (ILRs). These efforts hold promise for frontline workers, but in order for them to access, navigate, and use these kinds of technologies, research and development (R&D) must involve workers themselves. It is critical to recognize that all frontline workers do not share the same needs, experiences, and advantages in the workplace. Involving workers in the development of systems and programs to support their advancement creates opportunities and also can strengthen and promote [racial](#), [gender](#),¹¹ and [digital](#)¹² equity in frontline sectors.

As we have seen time and again, solutions that are pitched and implemented without consulting those who are directly impacted fall short of their potential. Moving forward, we need to design systems that are worker-centric, worker-informed, and worker-driven to coordinate our efforts, advance workplace equity, and guarantee greater impact. We

recommend implementing an [Inclusive Innovation](#)¹³ R&D process to collaborate with frontline workers as co-experts in designing solutions to thrive in a skills-based economy and achieve mobility.

"More and more, the return on investment from the learner's perspective is going to be the most important topic of discussion when it comes to higher education and career training.

- Stephen Yadzinski, acting general manager,
JFFLabs at Jobs for the Future

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