Transforming STARs Career Data with AI and the Learner Information Framework

Opportunity @Work

STARs
SKILLED THROUGH
ALTERNATIVE ROUTES

Jobcase

An Executive Summary

A Case Study in Rewiring the Labor Market with AI and the Learner Information Framework

Tearing the Paper Ceiling with AI: Introducing the STARs AI Career Counselor

Millions of STARs – workers who are skilled through alternative routes – are blocked from meaningful careers by a paper ceiling, a set of exclusionary hiring practices that rely heavily on bachelor's degrees. To tear the paper ceiling, Opportunity@Work partnered with Jobcase, an AI and technology company, on the **STARs AI Career Counselor (AICC)**. This proof-of-concept project demonstrated how we can combine our proprietary **STAR Mobility Data Model (SMDM**) with generative AI to create a tool that illuminates skills-aligned career pathways for STARs.

A framework for transforming data between cross-sector systems.

To transform this tool into a powerful research asset, we implemented the **Learner Information Framework (LIF)**, creating a seamless, system-to-system connection to access and normalize proprietary user data. The project successfully provided personalized career guidance to **1,018 STARs within a 3-month pilot**. By pilot's end, **42% of participants completed workflows with the AICC; 35% received training recommendations; 28% received job recommendations, and 19% received both**. Most notably, **47% of jobs recommended were Gateway roles, jobs which significantly boost earnings potential and greater upward mobility.** Beyond the direct impact on users, the LIF-based data pipeline unlocked valuable insights into STARs' career aspirations and validated a scalable framework for future data-driven research. The LIFtoff project proves that a collaborative, technology-driven approach can rewire the labor market for inclusion, enriching both workers' careers and the wider ecosystem.

The "Paper Ceiling," Data Silos, and the Impact of AI

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The past two decades have seen a fundamental shift towards a degree-based talent management, creating a paper ceiling. STARs, who have developed valuable skills through alternative routes such as military service, community college, and most importantly by learning on the job, have the talent to fill critical roles but are blocked by degree screens, outdated assumptions about skills, and other exclusionary practices. At the same time insufficient worker-level data across the learn-to-earn ecosystem limits innovation and perpetuates harmful practices. The result has been a decline in economic mobility across the labor market. With the deployment of AI, there is a risk of exacerbating these trends but an opportunity to change them.

Recognizing this opportunity, Opportunity@Work sought a courageous, driven, and agile solution. We believed that by combining our expertise on STARs with the power of generative AI, we could create a tool that not only helps STARs navigate their career journey but also generates the data and insights needed to drive broader, systemic change. To achieve this, we needed a partner with the scale and technological depth to make our vision a reality.

The Challenge:
- Data about learners' and workers' diverse education experiences and skills are often locked in proprietary data systems, such as employer records, education records, or military service records.
- As jobseekers begin to adapt to the fast-growing landscape of AI-powered career navigation tools, the risk that such tools might perpetuate degree-bias if not developed with STAR-centric data remains high.

The Need:
- A way to "unlock" data stored within a broad-range of proprietary info systems as a means to produce a comprehensive, longitudinal learner records from which data insights can advance systems change, unleashing innovation to support career advancement for STARs.
- AI-powered career navigation tools intentionally built for STAR-inclusion.

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① Forging New Career Pathways with AI + Jobcase

Our mission to expand access to career opportunities cannot be achieved alone. We partnered with Jobcase, a leading technology and AI company that shares our mission and has a vast network of over 130 million members. This collaboration gave us the ideal platform to develop and test the **STARs AI Career Counselor (AICC)**—a first-of-its-kind tool designed to empower job seekers with real-time, data-driven career guidance.
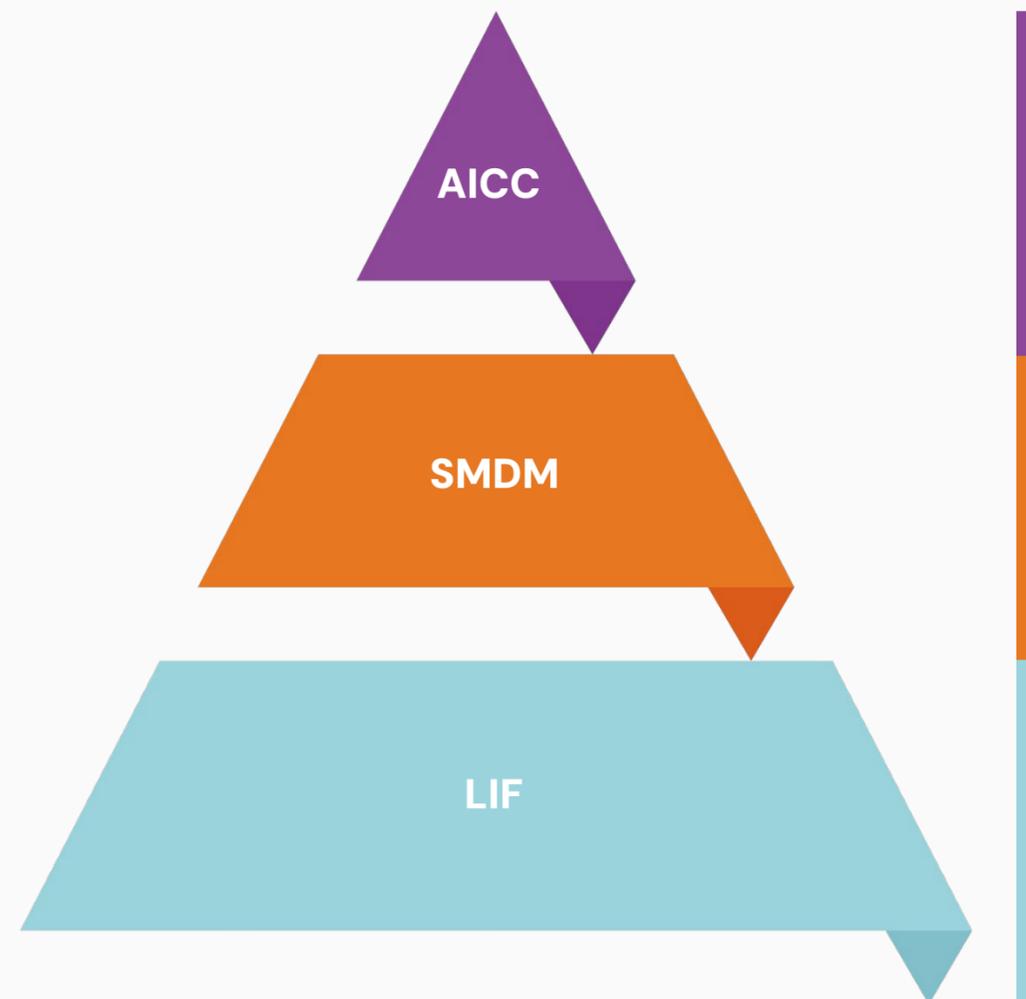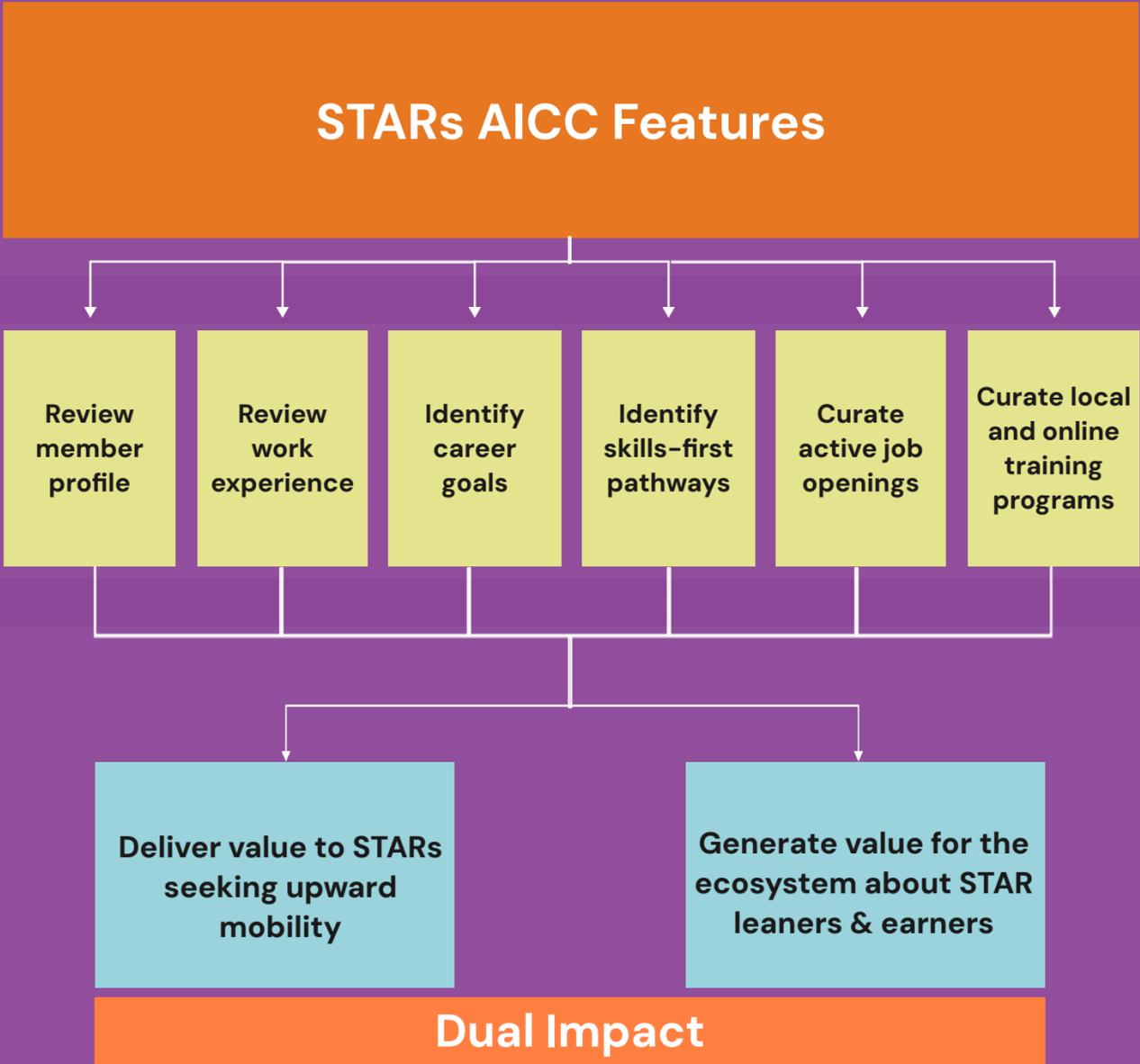

AICC
SMDM
LIF

The AICC was more than just a chatbot;
it was a proof-of-concept (PoC) built on two core components:

1. **A STARs-first AI Model:** We enhanced Jobcase's powerful AI with our proprietary STAR Mobility Data Model (SMDM). This innovative approach embedded a "STARs lens" directly into the tool, ensuring its recommendations were based on the skills and experiences of STARs, not just the credentials they may lack.

2. **A Bridge for Data Silos**: To fuel our research and advocacy, we needed a way to access the rich user data generated by the AICC, which was housed within Jobcase's proprietary system. This is where the Learner Information Framework (LIF) became essential. We implemented LIF's core components—the Translator and Orchestrator—to create a seamless, system-to-system connection, allowing us to normalize and transfer Jobcase's data into a format that our research team could use for valuable field-building insights.

Learn more: Unlocking New Opportunities for Learners and Earners Through Data Integration with Opportunity@Work

2 Combining STARs–Centric AI with LIF to Double the Impact

O@W partnered with Jobcase, a technology and AI company that operates a job marketplace and social platform, partnered under the shared mission to help millions of workers find gainful employment.
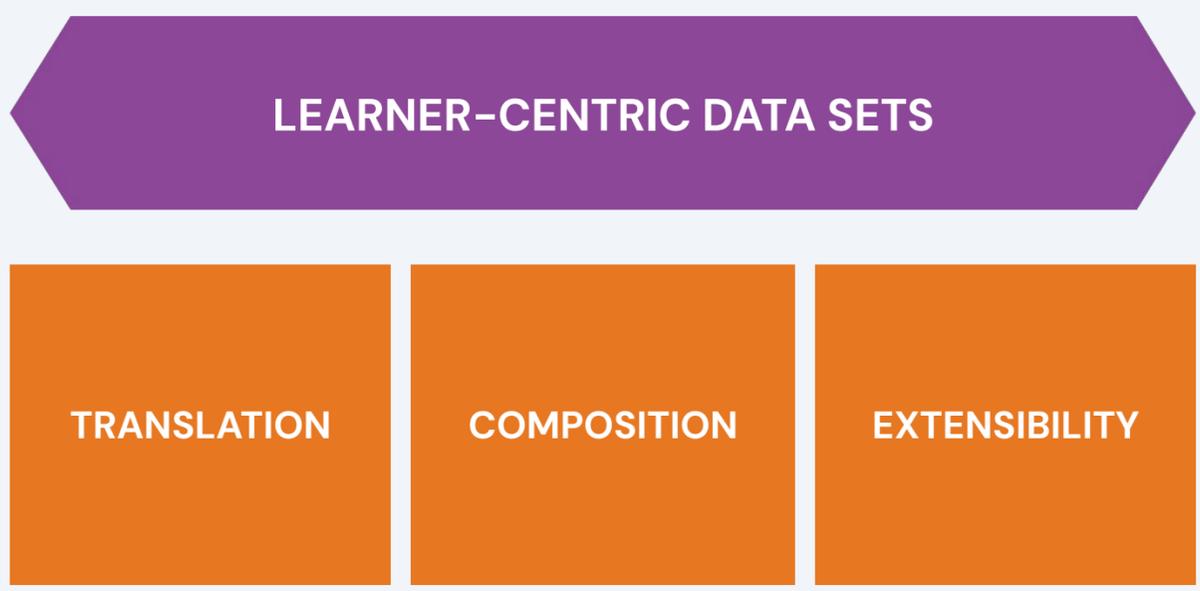
STARs AICC Features

- Review member profile
- Review work experience
- Identify career goals
- Identify skills–first pathways
- Curate active job openings
- Curate local and online training programs

- Deliver value to STARs seeking upward mobility
- Generate value for the ecosystem about STAR leaners & earners

Dual Impact

Combining O@W's SMDM with Jobcase's AI expertise and member network of 130+ million registered users, the **AICC illuminates skills–aligned career pathways for STARs.** It leverages Jobcase's large language model (LLM) and is further enhanced by O@W's STARs Mobility Data Model (SMDM).

Jobcase trained its LLM with O@W's Jobs Transitions data from the STARs Mobility Data Model. This allows the AICC to map pathway recommendations based on a user's self–reported experience and skills.

- The AICC is designed to provide data–driven career counseling to STARs exploring paths that can lead to greater upward mobility. It **provides key insights on occupations and the skills required, connects a user's skills to job titles, offers job search results, and recommends upskilling programs.**

- The Learner Information Framework (LIF) served as the framework for integrating crucial member data, generated through AICC interactions, into O@W's existing data systems. This process transformed the data from its source, orchestrating it according to the LIF normative data model. This approach ensured the preservation of "fine grain" data that might otherwise be lost across differing systems.
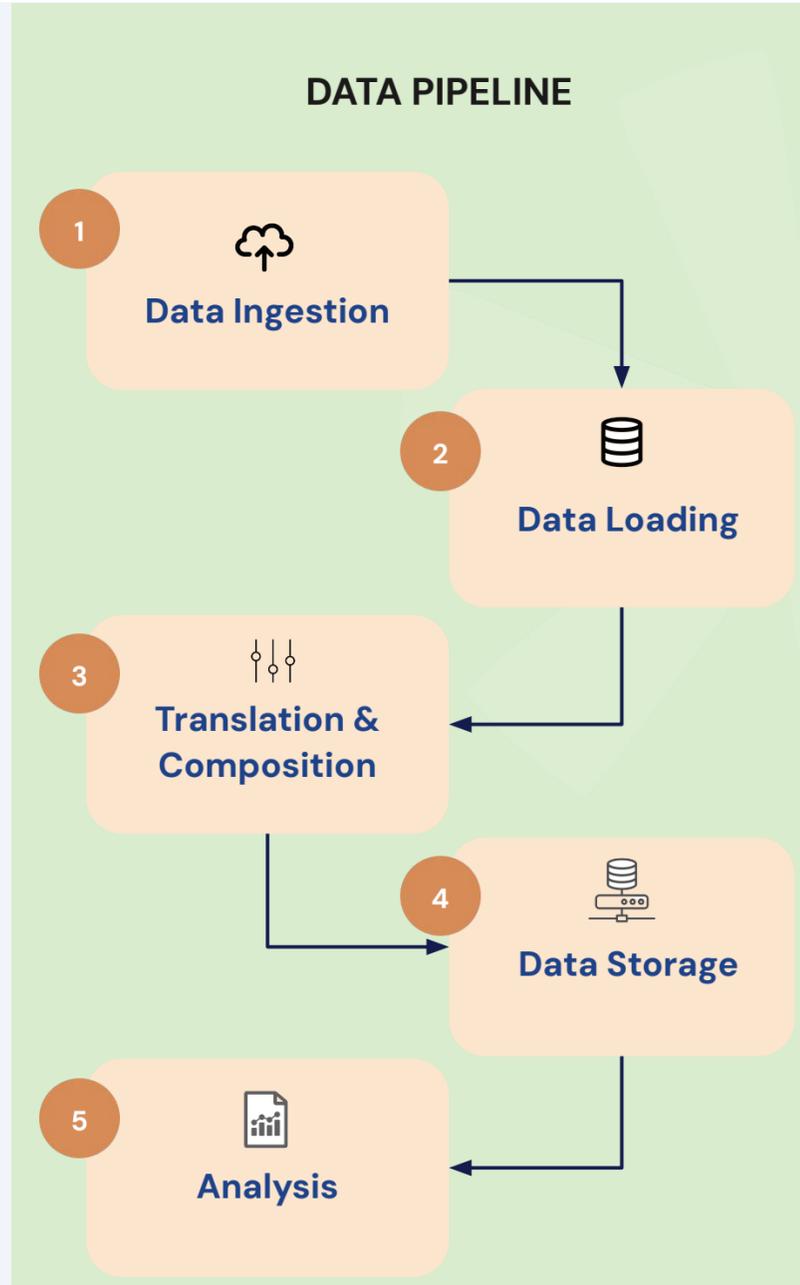
3 From Raw Data to Actionable Insights

With the LIF implementation, we were able to normalize, assemble, and deliver rich data into a consuming application, where it could be used for analysis.

LEARNER-CENTRIC DATA SETS

TRANSLATION	COMPOSITION	EXTENSIBILITY

The LIF-based data pipeline enabled us to move beyond a one-off tool and establish a scalable framework for integrating data from partners. It validated our hypothesis: a shared data framework can transform proprietary data into a valuable, shared asset that could benefit an entire ecosystem.

1

CROSS-SECTOR DATA-SHARING:
LIF weaves together existing and proprietary data standards to create a shared, consistent view of a learner.
By integrating data across organizations and sectors which make up a learner's education and workforce experience, **LIF makes it possible for a comprehensive longitudinal lifelong data record to be leveraged for insights that can drive meaningful action.**

2

LIF-SPECIFIC:
O@W's implementation consisted of LIF's essential components: the metadata repository, the LIF-normative data model, and the translation and composition services which directed the final engineered solution.
Validation tests successfully demonstrated LIF's ability to consume data, read and assemble it according to its model, and be extended to preserve "fine grain" data stored in proprietary data systems.

DATA PIPELINE

1 Data Ingestion

2 Data Loading

3 Translation & Composition

4 Data Storage

5 Analysis

The Results: Early Signals of Upward Momentum for STARs

Within a 3-month pilot period, the AICC empowered 1,018 potential STARs, providing them with personalized career navigation support that opened new doors:

|		
38% STARs received new career pathway recommendations aligned with their skills.	**35%** STARs received tailored recommendations for training or education programs.	**28%** STARs were connected directly to active job openings aligned with their skills & aspirations.
42% STARs completed workflows within the AICC	**19%** STARs received tailored recommendations for training/education and directed to active jobs.	**47%** Gateway jobs recommended, boosting significant earnings potential based on skills.

This pilot project proved the value of our approach and provided profound insights into the needs and aspirations of STARs. We analyzed the data and found a clear overlap between the jobs STARs currently hold and the ones they seek, which are concentrated in low- and middle-wage occupations. STARs engaging with the AICC were twice as likely to engage with jobs recommended by the AICC. This shows that the AICC's recommendations for higher-paying, skills-aligned roles are providing genuine, upward mobility opportunities that STARs might not have considered on their own.

The success of the LIFtoff project provided valuable lessons that will inform our future work.

What We Learned:

- **AI-Powered Technology is a Powerful Enabler:** We proved that AI tools can be successfully trained with a "STARs lens" to provide meaningful, skills-based career guidance. The AICC's ability to help users identify their marketable skills and connect them with opportunities is a powerful demonstration of technology's potential to drive positive change.

- **Shared Data Unlocks New Insights and Opportunities:** The LIF-powered system-to-system connection unlocked longitudinal learner data that was previously inaccessible, proving that a standardized framework can enable crucial field-building insights. We now have a blueprint for how to partner with other organizations to access and transform proprietary data into a shared asset that can benefit the entire labor market.

- **Clear Data Design is Essential to Answering Core Questions:** We learned that to get the clearest answers to impact questions, we must design the data shared with our partners with a specific purpose in mind. Going forward, we will work closely with partners to define the data needed to measure key outcomes, ensuring our research can drive even more impactful, evidence-based
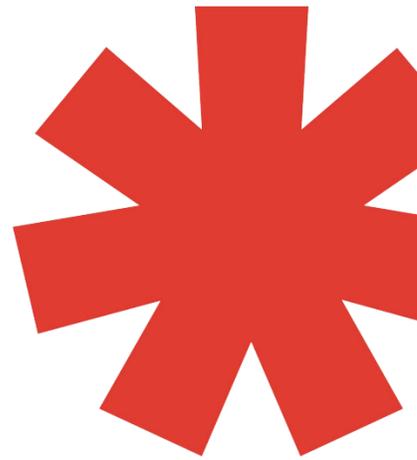
The **STARs AI Career Counselor** and the **LIF** implementation represent a significant step forward in our mission to create a labor market that is rewired for inclusion. We are hopeful that by continuing to partner with organizations like Jobcase and by leveraging agile, courageous technologies, we can continue to clear pathways for STARs everywhere.

"Your experience validates you... I love education and learning, but we need to broaden what it means to have an education, and the different means [through] which you're able to accumulate that. There's so much talent out there that's untapped, underutilized and underlooked."

Sheree
Career Counselor

Acknowledgements

About Opportunity@Work

Opportunity@Work is a 501(c)3 nonprofit organization whose mission is to rewire the labor market to create economic opportunity for the more than 70 million workers Skilled Through Alternative Routes (STARs). Opportunity@Work engages with corporate, philanthropic, and workforce partners to directly address the barriers that STARs face, recognize STARs' talent, and eliminate unnecessary degree requirements for open roles. A national advertising campaign co-led with the Ad Council, "Tear the Paper Ceiling", brought together a growing coalition of more than 60 corporate and non-profit partners to raise awareness of and support the hiring of STARs. Learn more at www.opportunityatwork.org.

About Jobcase

Jobcase is an online community empowering the world's workers. We know success is shared, which is why we developed technology to bring our proud community of workers together with the companies who need their skills. Over 130+ million registered members rely on Jobcase to find jobs, tools, and support they need to improve their work lives and help companies succeed. We're one of the fastest growing technology companies in Boston, a Workday Ventures Partner, and an industry affiliate of MIT's Computer Science and Artificial Intelligence Lab (CSAIL). Jobcase also collaborates with employers, nonprofits, and government agencies to both improve and diversify access to opportunity in the workforce. Learn more at www.jobcase.com

Special Thanks

We wish to acknowledge the dedication and contributions of many individuals who helped bring this project to completion: Amy Mortimer, Connie Kwong, Dau'ne Baraka, Eduardo Ferraz, Lydia Henton-Talabi, Pedro Marins, Natalia Lara, Rebecca Gerber, Scott Gullick and Unicon.