

Evaluation of the TechSF Workforce Innovation Partnership

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I. Introduction

A recent explosion of growth in San Francisco's technology (tech) sector has fueled an acute demand for local talent. Anchored by industry heavyweights like Jawbone, Twitter, Salesforce, and ZenDesk, the tech sector produces, at accelerating speeds, an array of breakthrough industries—from social media, to cloud-based applications, to lifestyle products. In 2012, local firms expected to add more than 8,000 new positions, pushing the total number of tech jobs well past the 34,000 high set in 2000 (Dickinson, 2012). As of June 2015, San Francisco's tech industry was composed of over 2,600 companies employing more than 43,000 people.¹ Moreover, San Francisco's tech-friendly business incentives have attracted scores of new firms. In the first two months of 2012 alone, tech companies like Amazon and Airbnb leased more than 1.1 million square feet of office space—not only creating new jobs but also reviving struggling neighborhoods with foot traffic and commerce (San Francisco Business Times, 2012).

Phenomenal tech sector growth presents the city's public workforce system with tremendous opportunities, both to connect job seekers to quality employment and to learn from and adapt the sector's innovative approaches to work, learning, and talent management. Three related challenges, however, have prevented the public system from fully capitalizing on the current tech boom: (1) a persistent skills mismatch between those available in the labor market and those sought by employers; (2) inefficient and outdated workforce development systems that cannot match the tech sector's breakneck pace of change; and (3) the dearth of mechanisms for obtaining real-time information about the skills sought by employers, available jobs, and jobs with high growth potential in the sector.

To address these challenges, the San Francisco Office of Economic and Workforce Development (OEWD) won a competitive grant award from the U.S. Department of Labor (DOL) Workforce Innovation Fund to implement the TechSF Workforce Innovation Partnership (TechSF). The project was designed to develop new and more robust public-private partnerships and deploy agile change management processes to catalyze innovative, industry-based solutions to workforce development challenges, to meet rapidly evolving needs of employers and job seekers. The specific goals of the TechSF-WIP project were to: (1) enhance the workforce system's capacity to design and deliver innovative and responsive workforce services; and, (2) develop local talent to close information technology (IT) skills gaps.

¹ Statistics provided by OEWD.

The Workforce Innovation Fund (WIF) aims to transform systems, support program innovations, and contribute to the evidence base of best practices. The WIF supports programs that restructure and redesign service delivery strategies as well as improvements in systems that lead to positive outcomes for workforce system customers. DOL's objectives were to fund projects that seeded innovation at the systems level, through policies, organizational structures, planning processes, performance measurement, procurement, investment priorities, and information management systems to support service delivery strategies that result in better outcomes and lower costs.

DOL awarded grants to three types of projects on a continuum from those proposing new ideas that had never been tried to those implementing well-tested ideas adapted to new contexts. TechSF was a \$3 million award for a Project Type A to develop new and untested ideas. Type A projects proposed new or emerging structural and/or service delivery reform ideas that had been tried in limited circumstances (if at all), but were supported by strong logic models and/or preliminary successful outcomes data. By focusing on change at both the service delivery and the systems levels, and by requiring rigorous evaluation of each investment, DOL sought to ensure that WIF investments would inform the basis for broader change and continuous improvement in the operation of the public workforce system.

The DOL required all projects to include an evaluation by an independent evaluator. WestEd was awarded the contract to evaluate TechSF. The evaluation includes a formative evaluation, an outcome evaluation, and a cost study.

Summary of Findings

Some of the key findings presented in this evaluation report are summarized below.

System-Level Findings

The following findings relate to TechSF's system-level interventions, which were focused on developing collaborative relationships among tech sector stakeholders and implementing workforce service system improvements.

Workforce Innovation CoLab

- Leveraging the interests and resources of a diverse group of thinkers working toward change in the workforce system was viewed as a valuable opportunity and successful on a small scale.
- Innovation and change within the workforce development system requires incremental steps, time, testing, and the willingness to accept both successes and failures in order to run with ideas.

- Applying industry practices to seed innovation and change also requires being prepared to partner with practitioners in the field, both for implementation and feedback.
- CoLab activities helped build capacity for innovation within city government.

txt2wrk

- The txt2wrk pilot was not fully implemented as planned or within the original timeline of the WIF grant.
- The txt2wrk pilot project team encountered several challenges during the discovery and prototyping phases, adapted their approach in response, and eventually discovered how txt2wrk could fill an unmet need.
- Members of the txt2wrk project team suggested that the implementation may have gone more smoothly if the project team were more involved when decisions were being made about the pilot's focus.

Employer Engagement

- Project staff perceived that offering employers engagement opportunities ranging from low commitment events (e.g., informal networking breakfasts or lunches) to higher commitment events allowed OEWD to engage with a larger number of employers than a traditional model of committee meetings.
- Employers' reasons for participating in TechSF events varied by the type of event, as intended. Generally employers explained that their likelihood of involvement depended on the time commitment required and was also related to interests in networking and learning about training, contributing to social responsibility goals, recruiting job candidates, and promoting their company's brand name.

Service-Level Findings

The following findings relate to TechSF's service-level interventions, which were focused on designing and implementing innovative skill-building trainings and workshops for job seekers, in order to meet local employers' needs for a highly skilled IT workforce.

- Employers' participation in project-based training and education had a direct benefit on students participating in project-based learning courses.
 - Over 80% of students who participated in project-based learning and completed a course exit survey agreed that participation allowed them to gain skills expected by employers and increased their understanding of working cooperatively in a team.
- There was a positive and significant association between the number of career workshops technical training participants attended and their likelihood of finding a new job.
- Over 80% of workshop participants perceived that participating in the career management workshops improved their ability to communicate during an interview, identify job leads through their professional network, create a resume/portfolio that effectively communicated their skills, and start their own business.

Project Overview

The San Francisco OEWD and its project partners—including the Mayor’s Office of Civic Innovation (MOCI), The Institute for the Future, txt2wrk, the Bay Area Video Coalition, San Francisco State University, and City College of San Francisco—implemented TechSF. The project aimed to develop new and more robust public–private partnerships and deploy agile processes to catalyze innovative, industry-based solutions to workforce development challenges and meet rapidly evolving needs of employers and job seekers. The project builds on several other funding sources—including DOL grants (H-1B Technical Skills Training and Dislocated Worker grants), WIA formula funds, and San Francisco City and County General Funds—to build out a tech sector strategy for providing training in high-growth IT occupations, including training in the areas of networking, tech support, programming, and multimedia, as well as vocational skills training, work experience opportunities, job placement assistance, and career advancement services.

The project had two primary goals:

Goal 1: Create Agile Solutions that Transform Workforce Services. The project sought to establish more robust industry–workforce development system partnerships to optimize opportunities for public and private sector collaboration and leverage resources and expertise to build the capacity for continuous innovation within the public workforce development system. Project partners applied tech industry agile development and change management processes to develop and pilot test user-centered service innovation strategies, emerging technologies (e.g., online and mobile communications tools), and civic engagement strategies. Pilot projects planned to capitalize on networks of relationships between and among project stakeholders, including service providers, to design new approaches to developing and providing programs and services. An employer engagement intervention based on a highly successful local engagement “champion” model was intended to coordinate and incentivize employers’ participation and investment in workforce education and services. This intervention sought to help articulate new ways to enter IT career pathways and to arm job seekers with the know-how to navigate the fluid, dynamic environment of the project-based workplace.

Goal 2: Develop Local Talent to Close Skills Gap. TechSF aimed to cultivate an adaptive, skilled pool of local talent. It intended to coordinate workforce system providers, employers, and higher education partners to develop and pilot hard- and soft- skills training focused on industry exposure opportunities, including networking, work- and project-based learning, and courses for credit or credentials. TechSF planned to pilot an entrepreneurship incubator to provide vulnerable and disconnected job seekers short-term, intensive instruction led by employers and industry mentors, to help them pitch

ideas, solve problems, generate opportunities for “gigs” or project-based work, and stimulate small business growth.

The project approach was based on the following **theory of change**: Building and enhancing **sector partnerships** between employers, educators, and the workforce system will surface mutual dependencies, needs, and priorities for addressing shared workforce development issues. Applying an **agile, highly collaborative innovation process** to solve shared problems will allow project partners to accelerate job seekers’ skill development and respond in real-time to the skills gap. **New educational approaches** supported by employers—such as work- and project-based learning, entrepreneurship training, and other alternative training solutions—will build skills relevant to the sector. The agile innovation process will also **generate new tools and service strategies** for employers, educators, and job seekers (particularly vulnerable and disconnected populations) to connect to workforce services and access real-time information about opportunities across the industry. Education, training, and other workforce services that incorporate industry practices and tools will improve service quality and relevance.

This entire theory-of-change process will result in **better outcomes for employers and job seekers**. In addition, documenting, evaluating, and institutionalizing practices that mirror those used by industry will **generate evidence and resources** to help ensure services that lead to positive outcomes can be **successfully replicated** throughout the sector, in other sectors, and throughout the workforce system. The logic model is provided as Appendix B, Logic Models for TechSF Interventions.

Project Context

The WIF grant was awarded in July 2012, amid a rapid influx of tech companies to the downtown corridor, spurred by a tax incentive from the city of San Francisco that exempts companies from payroll taxes in exchange for moving to the Central Market/Tenderloin area. Prior to the influx of tech business, these neighborhoods were in steep decline and home to some of the highest crime rates in the city. As tech companies continued to locate in the city, office-space and housing vacancy rates plummeted, triggering a construction boom of new office buildings and apartment blocks which are transforming the physical and demographic landscape of the city.

In December 2013, the San Francisco Chronicle reported that technology companies had leased 40% more San Francisco office space since the start of 2010 than during the five-year dot-com boom, with tech tenants filling 22% of all occupied office space in San Francisco. The tech sector represented 61% of all office leasing in San Francisco between 2012 and 2013, an historic high; since 2010, tech companies had leased more than 15.5 million square feet in the city, including large deals by Airbnb, Square, Twitter, Yelp, Zendesk, and Zynga. Between 2009 and 2013, the tech sector had created 23,500 jobs—86% of all new office positions in the city (Temple, 2013).

The impacts of this phenomenally rapid growth stimulated public criticism and concern from citizens' groups, cultural groups, and economic development organizations. There were also tensions over strategies to manage the transformation of the downtown corridor. San Francisco Citizens Initiative for Technology and Innovation (sf.citi) was launched in 2012 as "the voice of tech in San Francisco," to "leverage the power of the technology community around civic action," support innovative policies, and work collaboratively with government to find "new solutions to historic problems facing San Francisco by building a shared sense of community and civic responsibility between San Francisco's technology companies and its residents" (sf.citi, 2015). As tensions remained high, the Board of Supervisors held a hearing on TechSF in March 2013, to help clarify how the publically funded sector strategy was contributing to training and employment opportunities for local residents in the tech sector and other industries in the city. The rapid pace of growth, as well as the rapid transformation of San Francisco's economy, presented both opportunities and challenges for the TechSF project team.

Project Staffing

The City and County of San Francisco's authorization and expenditure process was not concluded until early 2013, which delayed TechSF's staffing, contracting for services, and formal launch of project activities until approximately February 2013. In May, 2015, the project team requested and received a six-month no-cost extension to allow sufficient time to conclude program interventions. The grant term, which was to end on June 30, 2015, was extended to December 31, 2015.

There were several staffing and structural changes at the beginning and in the last year of the project. Shortly after the grant was awarded in July 2012, OEWD's Director of Sector Initiatives, who had overseen development of the grant proposal and was to play a key leadership role in managing the grant, left OEWD. A project manager in the Sector Initiatives Unit who had been hired in July 2012 assumed responsibility of the newly-named OEWD Strategic Initiatives Unit and the role of Project Director for the WIF grant.

The WIF grant project manager was hired in the Strategic Initiatives Unit in February 2013. In addition to responsibility for grant management and administration, the WIF grant project manager led the CoLab and txt2wrk system-level interventions studied in this report. The grant was managed in cooperation with the OEWD Program Operations Unit, which led the employer engagement and skills training pilot projects.

The Business Services function, managed within the Program Operations Unit, had had a number of vacancies due to a hiring freeze but was able to hire staff in 2013, including a new manager, and Business Services then became a separate unit within OEWD. Finally, in December of 2014, both the Director of OEWD and the WIF grant project manager left OEWD; the WIF grant Project Director (the Director of the Strategic Initiatives Unit) left OEWD in April 2015, and all grant responsibilities transitioned to the Program Operations

team, which requested an extension of the grant term through December 2015 to complete program activities.²

Evaluation Overview

During the first year of the project, WestEd met with members of the TechSF project team as they developed plans and launched project activities, in order to prioritize the interventions to be included in this study and develop an approved evaluation design. The evaluation had three objectives. First, a formative evaluation sought to understand how the TechSF initiative developed and designed improvements to the workforce development system. Second, an outcome evaluation of participant-serving talent development interventions examined employment outcomes. Finally, the evaluation included a cost study that examined how grant funds were spent across the grant initiatives.

The goals of this evaluation report are to:

- Describe lessons learned from adopting industry approaches to influence workforce development system improvements.
- Summarize employment outcomes and participant perceptions of TechSF's talent development initiative.
- Present how costs were allocated and spent by the TechSF initiative.
- Contribute to the knowledge base on the interventions under study.

Two Types of Interventions

The project piloted interventions intended to establish mechanisms that ensure IT business, education, and training stakeholders would work together to improve the workforce development system and address the IT skills needed by local businesses. Broadly speaking, the interventions were of two types: system-level interventions and service-level interventions.

The system-level interventions were focused on developing collaborative relationships among IT stakeholders and implementing workforce service system improvements; as such, they were process-oriented. The service-level interventions were focused on designing and implementing skill-building trainings and workshops for job seekers, in order to meet local employers' needs for a highly skilled workforce in targeted high-growth IT occupations; as such, they were outcome-oriented.

² The contract term for the evaluation was not extended; therefore results in this report are based on data captured prior to end of the original grant term, June 1, 2015.

System-Level Interventions

TechSF's system-level interventions promoted innovation in the ways tech sector stakeholders interacted with the workforce development system and in the planning, design, and delivery of workforce services. Goals for this group of interventions included building a workforce system infrastructure that encouraged collaboration and experimentation grounded in user-centered design, real-time data, and user feedback. The TechSF partners spearheaded strategies to engage industry leaders and apply industry technologies to solve workforce system challenges. Through this evaluation, WestEd conducted a formative study of three of these system-level interventions:

- *Workforce Innovation CoLab*: This intervention implemented strategies to optimize public and private sector collaboration, resources, and expertise to build the capacity for continuous innovation and improvement within the public workforce development system. Activities included convening the Workforce Innovation CoLab, a collective strategic leadership network engaging tech employers, design thinkers and other stakeholders in rapid prototyping processes and pilot projects intended to build the capacity of the local workforce system to innovate.
- *txt2wrk*: This was a web-based texting application intended to streamline job matching and referral processes in the OEWD CityBuild Employment Services Referral program and to improve access to job opportunities for populations with low digital literacy, low broadband connectivity, and other employment barriers.
- *Employer Engagement*: This intervention used strategies adapted to the culture and practices of the IT industry to cultivate organic networks of relationships with and between workforce service providers, employers, education and training providers, and job seekers. Beginning with informal interactions with IT industry leaders to build trust and solidify interest, the engagement strategy was intended to shift the paradigm of employers as advisors to one of employers as strategic partners integral to the success of program operations.

Service-Level Intervention

TechSF's service-level intervention developed and piloted a range of education, training, and employment services addressing skills needed in the IT industry to fill jobs in both the short- and long-term. Through this evaluation, WestEd conducted an outcome study of the following service-level intervention:

- *Talent Development*: This intervention involved developing and implementing employer-responsive IT training programs for job seekers, including a range of career management workshops, project-based learning opportunities, and employer-supported contextualized learning opportunities. Unemployed individuals, dislocated workers and underemployed workers were recruited through the America's Job Center system and other sources to participate in the new trainings. The goal was to place these workers in positions with local employers, including the IT stakeholders who participated in the systems-level interventions.

Three Types of Studies

WestEd's evaluation design was intended to be flexible, anticipating that innovation projects developed in collaboration with project partners and stakeholders would lead to specific opportunities to provide formative evaluative information in short-term feedback loops, as well as opportunities to develop data to capture individual-level labor market outcomes. The evaluation comprised three different kinds of studies: a formative study, an outcome study, and a cost analysis. The studies are briefly described below and are described in detail in the main body of the report.

Formative Study

The formative evaluation was intended to help inform the long-term viability of practices to support a tech sector strategy and specific business-driven training and education strategies under frequently changing market conditions in the IT industry. The formative study assessed how the interventions developed and fostered innovation. The process involved posing evaluative questions and providing feedback to support the development of the partnerships and pilots, as well as tracking changes over the grant period. The formative evaluation also examined implementation of specific pilot projects and reported on employers' participation in, satisfaction with, and uptake of workforce services.

The formative evaluation focused on three interventions intended to achieve change in the workforce service delivery system: the Workforce Innovation CoLab (CoLab), txt2wrk, and employer engagement.

The research questions guiding this study were:

- 1) How does drawing on a diverse mix of thinkers (employers, technology providers, educators, researchers, designers, and government agencies) help shape workforce strategies in San Francisco?
- 2) How does the application of tools and services developed by a group of diverse thinkers help to transform workforce services?
- 3) What are the advantages and challenges of the strategies used to engage IT employer participation in workforce services and experiential learning opportunities?
- 4) What practices ensure that education, training, and employment-assistance programs align with and cultivate skills in demand?

The formative evaluation relied on qualitative data collection strategies, including document review, observation, interviews, and surveys. Listed below are the strategies used to evaluate each of the three interventions included in the formative study. For more details on the formative evaluation methodology see Appendix A: Methodology.

Outcome Study

The outcome study examined the education- and training-related components of the TechSF WIF project to assess whether new approaches to skill development in formal and non-traditional settings and formats were associated with higher employment rates and wages.

The outcome evaluation research questions were:

- 1) Is there a positive relationship between receiving more TechSF services and being employed after receiving services?
- 2) Among those individuals who are employed after receiving TechSF services, is there a positive relationship between receiving more services and earning higher wages?
- 3) What were participants' satisfaction levels with the workshops and how did they perceive it influenced their job search?

The outcome evaluation was supplemented with information from participant surveys and program staff interviews about their perceived benefits and suggestions for improvement.

Cost Analysis

The cost study examined how costs were allocated across grant activities and how leveraged funds contributed to the project goals. The research questions were:

- 1) What are the costs of TechSF?
- 2) What is the cost per participant served, and how do the costs vary depending on the services received?

WestEd's approach to measuring the cost was built upon the data available and focus on cost per participant. The cost study examined how grant funds were distributed across the grant activities. The cost per participant was estimated for the participant serving interventions.

Study Limitations

The TechSF project was intended to innovate and break new ground based on promising practices. The design and methods selected were intended to be flexible and appropriate to the project activities and available data as the interventions developed over time. The design and methods selected for this study limit the ability to generalize findings presented in this report to other contexts or populations, as they are specific to this project's experience. However, the findings can serve as a source of information for stakeholders in the workforce development field who may be interested in adopting similar practices. The findings also suggest areas for future research to continue to build the body of evidence on the interventions included in this study.

Structure of the Report

The next chapter outlines existing evidence supporting interventions included in this report which informed both the design and evaluation of the interventions. The chapters that follow present findings based on WestEd's analysis of the data, followed by summaries of the findings and lessons learned. The final chapter presents an overview of the findings and lessons to consider. While the research team consulted project leaders, staff and stakeholders in the process of developing the data and drafts of this report, interpretations and conclusions presented in the report represent the perspective of the research team.

The remaining chapters of this report are organized as follows:

- Chapter II presents a **literature review** to frame the TechSF evaluation findings within the broader context of research on workforce development initiatives and sector strategies.
- Chapter III presents the **formative study** of the CoLab.
- Chapter IV presents the **formative study** of the txt2wrk pilot.
- Chapter V presents the **formative study** of the employer engagement intervention.
- Chapter VI presents the results of the **outcome evaluation** of the talent development intervention.
- Chapter VII presents the findings of the **cost analysis**.
- Chapter VIII presents **conclusions and lessons learned** drawn from careful review and analysis of the findings and discussion with project leaders.

II. Literature Review: Evidence Supporting Project Interventions

Evidence supporting the design of this WIF Type A project is drawn from research literature in several related areas: sector strategies, collaboration, employer engagement, innovation technologies, and business-responsive approaches to skills training.

Sector Strategies

The TechSF project intended to expand the knowledge base with regard to ways sector strategies can leverage resources, propel innovation, and apply sector-specific technologies to improve the relevance, efficiency, and effectiveness of workforce system services. In general, sector strategies focus intensively on the workforce and economic development needs of a specific industry or a cluster of related industries over a sustained period, customizing solutions for multiple employers within a regional labor market. They promote economic growth and industry competitiveness by developing new education, training, and employment pathways into targeted industries, including pathways for low-income and underserved populations.

The sector strategy model depends on collaboration to initiate systems change—both horizontal and vertical—to ensure alignment across partner agencies and organizations (National Network of Sector Partners, 2010). Several quantitative studies have assessed the model's impact on employment outcomes. The Aspen Institute examined six well-established sector initiatives (Aspen Institute, 2002) and Public/Private Ventures (P/PV) looked at nine newly formed initiatives (Roder, Clymer, & Wyckoff, 2008). Both studies showed gains for working participants in median earnings and consistency of employment. P/PV conducted a randomized control trial to further determine the impact of sector training programs (Maguire, Freely, Clymer, Conway & Schwartz, 2010), and the study found a number of positive participant outcomes on participant earnings, hours worked, and employment in jobs with benefits. Each of these studies included a program focusing on IT sector employment that showed positive results for participants in the areas of training completion and wage increases.

Although the partnerships in these studies were led by non-profit organizations, they share many characteristics with public-led sector initiatives, suggesting the promise of the sector approach for the public system. In January 2012, the United States Government Accountability Office (GAO) released a report analyzing 14 sector-based initiatives identified by national experts as among the most promising or innovative efforts in which local workforce boards collaborated effectively with employers and other partners to

achieve positive results (U.S. GAO, 2012). The report identifies six success factors that facilitated and sustained collaboration:

- Focus on the needs of multiple employers
- Strong leadership from all partners
- Successful leveraging of public and private resources
- Employer-responsive services
- Minimizing administrative burdens on employers and partners
- Demonstrating results that help sustain collaboration over time

A report on state sector initiatives produced by the National Governors Association for Best Practices and partners found similar success factors (National Governors Association Center for Best Practices, 2006).

The Maker Movement and Entrepreneurship

The TechSF project also set out to achieve a better understanding of emerging sub-sectors within the IT sector, which have their unique ways of operating and demand for skills. TechSF specifically focused on the “maker” and “sharing” economies. Makers use technology including electronics, robotics, 3D printers, and computer numerical control (CNC) tools in combination with traditional tools to create products and prototypes, often in shared workshops called makerspaces. Makerspaces are set up so makers can lease time and access tools to work on their products in an environment that fosters collaboration among entrepreneurs. Makers are considered real small business owners with the ability to create jobs and drive economic development (Initiative for a Competitive Inner City, 2013).

In May of 2012, Intel and MAKE sponsored a survey to “provide in-depth knowledge about the [maker] community, their collaborative approach to making and their use of tools and technology...and shed light on the attitudes and behaviors of makers” (Make Magazine, 2012) According to self-classification, makers mainly view themselves as hobbyists (48%), tinkerers (23%), and builders (21%; categories are not mutually exclusive). They create a variety of products, with the largest category being hardware/software (79%) followed by electronics (64%). Importantly, makers use their products and skills to generate income to different degrees, with 34% reporting making for commerce or income related motivations and of those, 46% noting their making ability is or will be their job (Make Magazine, 2012). Helping makers/entrepreneurs collaborate and learn aspects of building a business as well as their craft can launch new companies and help them become viable, long-term job creators.

Similarly, the advent of the sharing economy, similar to peer-to-peer businesses like eBay, creates opportunities for individuals to offer their skills and services as well as possibilities

for entrepreneurs to create the next successful sharing enterprise. The contemporary global sharing economy is possible only through the Internet and use of websites and apps to market, evaluate, and purchase goods and services. Piecemeal labor, as expedited by technology and packaged as apps, has “taken on a shinier veneer under new rubrics: the sharing economy, the peer economy, the collaborative economy, the gig economy” (Singer, 2014). Gigs require self-management and offer variety and choice in assignments, as well as flexible schedules. This emerging model is considered large and disruptive enough to have attracted attention from regulators and established companies that are beginning to invest in sharing platforms (The Economist, 2013). Workers using these sharing platforms are often considered independent contractors or part of the contingent workforce. The U.S. Government and Accountability Office recently released a report (2015) that finds many contingent workers receive lower pay and benefits than workers in standard employment situations.

Employer Engagement

Employer engagement is a key element in successfully implementing programs that effectively address workforce needs. With the unique culture and rapidly changing trends of the IT sector, employer engagement to understand and meet business and hiring needs is vital. IT employers are increasingly the best source of information on where growth is occurring, what occupations are in demand, the changing nature of skill demands and work expectations for IT companies (NOVA Workforce Board, 2011). Whether working at a strategic or operational level, employers and their representatives have been involved in identifying opportunities for establishing and strengthening targeted sectors, establishing strategic and operational goals, creating and strengthening regional partnerships, and overseeing the transformation of the service delivery system (Public Policy Associates, 2009).

However, the public workforce system has not been as successful in engaging IT employers. In a recent survey of regional tech employers, over 70% reported they had never heard of their Workforce Investment Boards (WIBs) and those who do often see relationships with WIBs as a civic duty rather than beneficial to their businesses (NOVA Workforce Board, 2011). This requires the public workforce system to go beyond just seeking employer input to providing real value. Employer engagement practices, both in general and specifically in the IT sector, have not been systematically or rigorously evaluated. There are, however, several reports that provide recommendations for effective engagement.

Employers are motivated to be engaged with the public workforce system for a variety of reasons. Many business leaders are starting to consider environmental, social, and economic issues, including regional economic and workforce development, as strategic

factors in the long-term success of their firms. Accordingly, appeals to corporate social responsibility offer an increasingly viable way to attract business participation (Council on Competitiveness, 2008). This is one example of the fact that the most effective way to approach business engagement is to consider the benefit to the employer as well as the public workforce system. In addition, experience has shown that business leaders are usually most active in those development efforts that they themselves have initiated (Council on Competitiveness, 2008).

From an economic development perspective, when employers are engaged and supported to collaborate within a network, it may help regions discover new opportunities for transformation; build support for action among key stakeholders; and find, leverage, and align the regions' resources to take advantage of these new opportunities (Public Policy Associates, 2009). Further, employer engagement strategies should have an explicit, intentional focus on preparation, recruitment, and retention. Successful recruitment depends on being able to clearly articulate why an individual business leader's participation is vital to the success of an economic development initiative. To maintain the involvement of business leaders, it helps to develop a structure and plan that reflects the "business" culture. A simple strategy is to ask business leaders to lead meetings and report on their projects (Council on Competitiveness, 2008).

While employer engagement is widely recognized as important, it is a challenging area. Distinct motivations and expectations, as well as differences in organizational culture, often result in difficulty recruiting and retaining business leaders in economic development initiatives (Council on Competitiveness, 2008). The approaches and observations outlined above are particularly relevant to IT employers, as the industry's business model and culture guiding product development, marketing, expansion, and employment practices depends on successfully building, managing, and expanding social and professional networks.

Use of Innovation and Technology to Transform Public Workforce Services

Another thread in the literature guiding this project focuses on the increasing attention, interest, and success in the ways public-private collaborations use technology innovations to address public sector issues. For example, one of the pillars of President Obama's *Strategy for American Innovation* is to catalyze breakthroughs for national priorities by leveraging information technology in new and creative ways (Executive Office of the President, 2011). This approach has already yielded successes.

A successful example is LinkedIn's data analytics. At the request of the White House Council of Economic Advisers, LinkedIn recently mined the profiles of its millions of

members to determine which industries and job titles were experiencing the largest gains and losses—thereby delivering information much closer to real time than traditional government surveys (The Economist, 2012). Further, acknowledging that the public’s expectations for interactions with the government now involve using technology, the government’s U.S. Digital Services Playbook outlines “key plays” that it has compiled from both the private and public sectors as best practices (U.S. Digital Service, n.d.). Many of these, such as using agile and iterative “practices,” understanding people’s needs, collaborating with “experienced teams,” and simplifying practices and processes informed the TechSF initiative (U.S. Digital Service, n.d.). Frameworks like the Bloomberg Initiative “innovation delivery model,” further underscore the importance of (1) being committed to data; (2) exploring “what has worked before;” (3) creating spaces and techniques to generate ideas; (4) managing both project and performance; and (5) developing partnerships (Bloomberg Philanthropies, 2014).

The process of developing and integrating information technology into workflows and daily practice to transform workforce services can be understood through agile development and improvement science principles. Agile software development methods evolved in the mid-1990s as a reaction against heavily regulated, regimented, and overly incremental approaches to development. These methods emphasize direct interactions between those involved in the development process, abbreviated timelines for producing operational products, collaboration, and responsiveness to change (Beck, et al., 2001). To complement agile development processes, industry leaders developed project management principles that stress interdependencies between developers and clients. These include engaging customers in frequent interactions and shared ownership of processes; managing uncertainties through iterations, anticipation, and adaptation; promoting group accountability for results and shared responsibility for team effectiveness; improving effectiveness and reliability through situation-specific strategies, processes, and practices; and increasing return on investment (Anderson, et al., 2005). Venture capitalists tend to monitor their investments closely, often taking a role in a firm’s major decisions (Winton & Yerramilli, 2008).

Agile development involves creating “user stories,” continuous stakeholder feedback, and iteration through collaboration (Agile Government Leadership Project, n.d.). In the case of TechSF, agile development has included implementing principles of User Centered Design (UCD). Originally focused on design and technology (such as with human computer interaction), UCD has drawn attention and support internationally, nationally, and across fields, moving from a “multidisciplinary” approach to an “interdisciplinary” one in the early 2000’s (Sundbland & Lenman, 2001). The approach focuses on incorporating user feedback, needs, and wants into design to inform products through continual processes. UCD has also been highlighted for its ability to promote change, focus on process, and interaction (Flower, 2014; Kaptelinin & Bannon, 2012).

Work from the Swedish Center for User Oriented IT Design (CID) has shown that “user oriented work over discipline boundaries, university boundaries, industry boundaries and user organization boundaries is both possible and fruitful” (Sundbland & Lenman, 2001). An example of such possibility can be found within the NGO sector, such as with IDEO’s Human Centered Design Toolkit, which is intended to inspire new solutions between social enterprises working in impoverished communities (IDEO, 2009). Related to UCD, IDEO proposes various methods and “mindsets” with which to approach innovation such as by learning from “failure,” and being empathetic and iterative (IDEO, 2009).

When focusing on iterative processes, the discipline of improvement science can also provide a useful framework for research focused on systems, organizational, and practice improvements that are developed and implemented rapidly under highly complex, adaptive circumstances. The primary goal of this scientific field is to determine which improvement strategies work as innovators within institutions to assure effective and efficient programs and services (Improvement Science Research Network, n.d.). Much of the work to date has been conducted in healthcare, education, and child welfare settings.

Effective Education and Training Strategies to Close IT Skills Gap

On the demand side, employers are recruiting from a small pool of skilled workers, creating a virtual talent war. On the supply side, local job seekers—especially at-risk populations, the working poor, and long-term unemployed—express frustration that tech opportunities seem out of reach since they have no clear pathways into the industry. A recent regional survey found that despite high unemployment, a majority of information technology (IT) sector employers reported difficulty finding qualified candidates (NOVA Workforce Board, 2011) due to skills gaps and mismatches in the available workforce.

When addressing the skills gap, it is important to note that the skills sought by employers go beyond just technical skills. A 2013 MPICT report shows the importance employers place on soft skills, with 76.3% agreeing that “non-technical (soft, workplace, or employability) skills are at least as important as technical skills in what we look for in our ICT Workforce” (Carrese & Jones, 2013). Similarly, a 2014 study explains the importance of career navigation skills and characteristics in facilitating career success (NOVA Workforce Board and Economic Advancement Research Institute, 2014). In addition, a 2011 NOVA survey of regional tech firms and employers emphasized the need for job seekers to have tangible portfolios and work products (NOVA Workforce Board, 2011). To address the skills needs of innovative IT employers, WIBs must provide both classroom technical training and non-technical skill development support. This will require ongoing relationships with employers and real-time labor market data (NOVA Workforce Board, 2011).

A specific strategy to address the skills gap is to provide entrepreneurship training to enable participants to create their own businesses and be self-employed. While this strategy has not been evaluated in regards to IT specific careers, efforts aimed at self-employment in general have been evaluated. A 2009 report evaluated the GATE program (Growing America through Entrepreneurship) which was designed to help people create, sustain, or expand their own business. Participants were offered an initial assessment of their business needs, classroom training, one-on-one business counseling, and assistance in applying for business financing with One-Stop Career Centers being the gateways to the program. The results of the program were mixed with GATE participants starting businesses sooner and owning businesses for longer, but there was no impact on the earning of the self-employed and the positive impacts created only lasted a few quarters (Benus, Shen, Zhang, Chan, & Hansen, 2009). The GATE program covered a wide range of self-employed careers, many of which are quite different from IT careers. Considering the fact that entrepreneurs have a large role in the IT sector and much of the structure is based on self-employment, more research is needed to know if this approach can be more successful for entrepreneurs in the IT sector.

Contribution to the Knowledge Base

This study aims to contribute to the knowledge base on successful practices in building IT sector strategies, the use of innovative approaches to plan and deliver workforce services, and promising IT training and education strategies. Few evaluations have documented the process of using industry practices, such as agile development and entrepreneurial approaches, to achieve change in the design and delivery of workforce systems and services. Specific ways this study can contribute to the field include:

- Describing strategies that engage industry and innovation leaders to enhance sector partnerships and develop solutions to workforce service-system and service-delivery challenges by applying innovative approaches and technologies.
- Demonstrating that workforce system education and training partners can develop and implement IT training that is tailored to program participants' specific interests and abilities and responsive to local employers' immediate and anticipated long-range needs.

III. Formative Study: Workforce Innovation CoLab

WestEd conducted a formative evaluation of three of TechSF’s system-level interventions: the Workforce Innovation CoLab, txt2wrk, and employer engagement. The formative evaluation was intended to gather and report information to help guide ongoing planning to support innovation and adjustments to pilot project strategies; provide feedback on key project milestones and critical junctures in the planning and innovation process; and document how specific strategies or interventions unfolded. The overall objective of this study was to build the evidence base on previously untested strategies to change and improve the public workforce system.

This chapter examines the Workforce Innovation CoLab (CoLab), a collaborative strategic leadership infrastructure that engaged IT businesses, design thinkers, researchers, and other workforce development stakeholders to apply industry practices toward building the capacity of the local workforce system to innovate and improve the design and delivery of services. It describes how the CoLab evolved, engaged its members, and launched pilot projects and civic engagement events. The chapter also outlines the successes, challenges, and lessons learned from the pilot project’s efforts to leverage industry expertise and resources to create change in the workforce development system.

CoLab Structure and Work Plan

The CoLab was designed as a pilot forum for developing new ideas, tools, and services that could improve the capacity of San Francisco’s workforce development system to connect local job seekers with jobs, strengthen collaborations with employers, and respond to employment needs in the local economy. The CoLab’s mission was to shape the future of workforce development in San Francisco by designing, developing, and deploying innovative workforce tools and services. It was structured to be an interdisciplinary body formed around a core group of members, which included individuals from design, philanthropy, workforce technology organizations, and government agencies.

The CoLab’s mission was to shape the future of workforce development in San Francisco by designing, developing, and deploying innovative workforce tools and services.

The CoLab pilot was staffed by the San Francisco Office of Economic and Workforce Development (OEWD) TechSF WIF project manager and a Deputy Innovation Officer in the Mayor’s Office of Civic Innovation (MOCI). MOCI’s mission is to help create an

environment that promotes innovation in City Hall, and to champion new ideas, tools, and approaches across departments in city government by serving as a portal and clearinghouse for ideas that increase government responsiveness, effectiveness, and efficiency. OEWD and MOCI had not previously worked together and, as the pilot began to take shape, MOCI assumed a lead role in facilitating much of the logistical work to recruit and convene CoLab members, due to its greater internal knowledge, capacity, and experience with technology projects and its networks with tech industry leaders.

The CoLab was intended to operate nimbly and fluidly in order to mirror the San Francisco tech industry's abilities to rapidly create, test, and scale ideas. The CoLab pilot project team identified workforce development priorities set by the Mayor and aspects of workforce system operations to present to CoLab members and other stakeholders (staff from city departments, community-based organizations, program participants, subject matter experts, and service providers) at CoLab meetings and civic engagement events. The project team gathered information and data on emerging trends and practices in the tech industry, the technology/knowledge economy, and workforce development arena, and adopted principles of User Centered Design (UCD) to inform their approaches to identifying opportunities for innovation in San Francisco's workforce development system.

The initial proposed CoLab work plan appears in Exhibit 1, below.

Exhibit 1. Schedule of CoLab Key Activities and Milestones

Project Year	Projected Implementation Date	Proposed Activity
Year 2	September 2013	Create baseline reports on workforce system and sector engagement areas of opportunities.
	November 2013	Recruit membership of the core group and hold initial meeting, with quarterly meetings thereafter.
	November 2013	Develop list of biggest challenges and greatest opportunities for CoLab.
	December 2013	Clear staffing and work plan created for CoLab.
	January 2014	CoLab produces initial pilots, new ideas, and specific recommendations. Develop list of data sources used in planning and decision making. Plan and launch first pilot career-navigation application.

Project Year	Projected Implementation Date	Proposed Activity
Year 2	February – June 2014	Hold two civic engagement events to create broader public input into workforce system solutions (e.g., career-navigation tool development, hack-a-thon).
	June 2014	Employers and stakeholders rate CoLab process highly and/or make specific improvement plans.
Year 3	July 2014	Make initial documented changes to workforce system.
	By June 2015	Hold minimum of two additional civic engagements to enlist workforce system solutions.
	By June, 2015	Plan and launch two additional pilots.

The CoLab evolved through two distinct phases as it learned from and responded to iterative development processes. The first phase focused on launching and convening the CoLab; identifying ideas and opportunities to initiate change in the workforce development system; and learning how to work with CoLab members and project stakeholders to generate pilot projects with the potential to transform the workforce development system and services. A second phase of implementation followed an intentional “reset” or “pivot” in the CoLab strategy in response to lessons learned in Phase 1. The process of convening and working with members of the CoLab and other industry stakeholders led to investments in four civic engagement events and seven pilot projects.

Formative Study Overview

WestEd conducted a formative evaluation to generate information that could be helpful to the OEWD, MOCI, and project stakeholders as the CoLab and its pilot projects were unfolding. The formative evaluation had two objectives: (1) to provide the project team and participating stakeholders feedback over the course of the CoLab’s planning and early implementation phases; and (2) to document key benchmarks, successes, challenges, and lessons over the course of the CoLab’s efforts to shape the future of workforce development in San Francisco by designing, developing, and deploying innovative workforce tools and services.

The formative study followed two aspects of CoLab activity:

- How the CoLab functioned to achieve systems change.
- How pilot projects developed.

The research questions guiding the formative evaluation of the CoLab and its activities were:

- 1) How does drawing on a diverse mix of thinkers (employers, technology providers, educators, researchers, designers, and government agencies) help shape workforce strategies in San Francisco?
- 2) How does the application of tools and services developed by a group of diverse thinkers help to transform workforce services?

Data Sources

Data to answer these questions were captured at different phases of the CoLab's evolution and obtained from multiple sources.

Observation. WestEd observed, participated in, and documented the two in-person meetings with CoLab members held in November 2013 and February 2014, and collected information and feedback from the CoLab staff about meetings held by conference call and online meeting tools. WestEd also attended and documented a meeting that CoLab staff held with leaders of CoLab pilot projects on November 4, 2014, and attended two civic engagements events: The Articulate Workshop at the Bold Italic Conference, and the Institute for the Future's Workforce Development Ecosystem workshop. WestEd also met regularly with CoLab staff to learn and gather information about their plans, activities, and the pilot projects, to identify appropriate data collection points and methods as they unfolded.

Surveys. WestEd administered and analyzed surveys to capture attendees' and stakeholder's perceptions of event activities, and how these contributed to knowledge about and innovation in the San Francisco workforce development system.

Interviews. WestEd conducted in-person and telephone interviews with key OEWD and MOCI project staff at three points in time, to document their experience and progress with the CoLab's launch, pivot, and ongoing activities. Four CoLab members were also interviewed at a mid-point in the implementation stage (between June 2014 and November 2014) to learn their perceptions about their roles, understanding of the CoLab's goals, and ideas for possible future directions.

Documents. Researchers also reviewed notes, documents, and materials that were used or developed to support CoLab meetings and activities. Documents included items such as meeting agendas, sign-in sheets, PowerPoint presentations, handouts and brainstorming materials from meetings and events, articles, work plans and other materials the project team and partners created to support implementation of CoLab activities.

WestEd researchers synthesized and analyzed information from these sources to answer the research questions. A full description of the methodology can be found in Appendix A. Methodology.

The CoLab was intended to be highly experimental, testing innovative strategies to apply technology to transform workforce services developed in cooperation with tech industry leaders. The evaluation design and methods selected were intended to be flexible and appropriate to specific activities and data available as the intervention developed over time. The design and methods selected for this study limit the ability to generalize findings presented in this section to other contexts or populations, as they are specific to this project. However, the findings can serve as a source of information for stakeholders in the workforce development field who may be interested in adopting similar practices.

Summary of Findings

The main formative evaluation findings about the CoLab are summarized below:

- **Leveraging the interests and resources of a diverse group of thinkers working toward change in the workforce system was viewed as a valuable opportunity and successful on a small scale.**
- **Innovation and change within the workforce development system requires incremental steps, time, testing, and the willingness to accept both successes and failures in order to run with ideas.**
- **Innovation and change also require being prepared to partner with practitioners in the field, both for implementation and feedback.**
- **CoLab activities helped build capacity for innovation within city government.**

The rest of this chapter is organized as follows: The first section describes the CoLab's implementation and strategies, describing how the CoLab evolved over time and launched pilot projects; the section also examines stakeholders' perspectives on successes and challenges associated with the CoLab and its activities. The final section discusses the findings and lessons learned.

Findings

The CoLab pilot was characterized by two main phases of activity. The first phase covered a span of approximately 16 months between February 2013 and July 2014, and included planning and recruitment activities, the launch, and meetings and discussions with CoLab members and stakeholders. The second phase, a “pivot,” refocused the approach to working with CoLab members and pilot project leaders, based on the project team's experience and feedback from CoLab stakeholders at a mid-point in implementation activities following the launch (July and August, 2014). The following section tracks the evolution of the CoLab and presents findings addressing how efforts to convene and organize a diverse group of thinkers catalyzed the development of pilot projects to transform workforce services.

Launching and Managing the CoLab

An ongoing scan of the environment focused CoLab activities on the future of work and developments in the maker and sharing economies.

CoLab project staff prepared to launch the CoLab by assessing various theoretical and operational frameworks on initiating change and innovation in systems, including frameworks drawn from literature on change management, innovation diffusion, agile development, and rapid prototyping, Human Centered Design, user-centered design, peer networks, social innovation, and social learning, as well as examples of how these had been applied to workforce development or labor market challenges. The project team also conducted an IT sector analysis, reviewed the structure and operations of a select group of workforce systems in cities across the country and began tracking initiatives at federal, state, and local levels aimed at increasing the responsiveness, accountability, transparency, efficiency, and effectiveness of government. Drawing on this diverse body of information, CoLab staff developed a framework to support innovation adapted to local capacities and challenges.

Themes that emerged from this early work included: forecasting trends in the rapidly changing IT industry and their impact on the local economy; approaching discussions using “market-making” language centered on skills and competencies; improving the ability of employers and job seekers to find one another and optimize mutual “fit”; building information resources for entrepreneurs and small business owners; and improving the ability of learners and job seekers to make informed decisions about educational choices, career paths, and employment. This work laid a foundation that helped focus the staff’s thinking on a structure and agenda to launch the CoLab.

CoLab staff continued to gather and incorporate information on emerging approaches to innovation, government and workforce initiatives, and labor market trends over the course of the CoLab pilot. The process of gathering and integrating this information both shaped their approach to working with the CoLab and allowed them to respond effectively to specific needs identified by CoLab members and workforce development stakeholders; for example, in their intentional focus on the future of work and developments in the “maker” and “sharing” economies (see the discussion of these two terms in the Literature Review chapter). As the focus of work with the CoLab began to take shape, this ongoing scan of the environment helped the project team adapt to the rapidly changing context for the work; adopt a mind-set, language, and way of working that resonated with CoLab members; and develop an approach that correlated with the CoLab members’ professional responsibilities and interests.

CoLab meetings provided opportunities for strategizing about ways to bring “fresh thinking” to workforce challenges.

MOCI and OEWD leveraged existing networks to recruit individuals to the CoLab, tapping representatives of the tech industry, design community, and nonprofit and public sectors with expertise in policy, executive management, technical skills, and innovation. They targeted individuals and organizations with the potential to initiate change in the private and social sectors; a desire and ability to work with government (in particular, the Mayor’s office); and the intention to prioritize tech sector strategies. Of 14 individuals invited, 12 agreed to participate.

The CoLab launched in November 2013 with a mission to “shape the future of workforce development in San Francisco by designing, developing, and deploying innovative workforce tools and services.” The objectives for the launch meeting included introducing members to workforce goals and challenges, brainstorming solutions by engaging around jobseeker “personas” or profiles, and opening dialogue on how to leverage expertise and networks to pilot solutions. That meeting established an initial framework for ongoing engagement (Exhibit 2).

Exhibit 2. CoLab Framework for Engagement



Through the framework for engagement, CoLab staff would “tee up” issues or “pain points” for CoLab members to consider in “fresh thinking sessions,” which would generate ideas for pilots that could be further developed in partnership between the CoLab team and CoLab members. The group agreed the value in convening the CoLab was to stimulate innovation by creating synergies among individuals of different backgrounds and experiences with workforce issues who could look beyond fixed, preconceived ideas of how the workforce system operated. At the same time, members expressed a need for more information about job seekers’ interactions with workforce services—or the “user experience” of job seekers—to help focus their efforts and maximize their possible contributions.

The discussion at the launch meeting led to decisions to pilot three projects that OEWD had already identified as candidates—LearnUp, GoBe.Me, and txt2wrk—as well as opened up conversation on how to understand and approach changes in the workforce, guided by the Institute for the Future. Suggestions for formats for future meetings and facilitating communication among members included additional in-person meetings, meeting on

Google hangout, group phone calls, and one-on-one meetings. The CoLab project leaders intended to test different formats for engaging members to learn each member's preferences.

A conference call held in December 2013 focused on strategies to affect policy change, with one CoLab member agreeing to spearhead a series of roundtable discussions on workforce policy issues affecting and affected by the tech sector, such as the industry's reliance on gig work pointing to a need to shift DOL policy to recognize attainment of temporary contract or freelance work as a successful employment outcome. A second in-person meeting was held at City Hall in February 2014. This meeting had two agenda items: (1) presentation of a prototype design for The Learning Shelter, a pilot program providing homeless individuals with employability skills and technical training on "maker tools"; and (2) a brainstorming session on the future of work and economic forces.

Of the 12 members who agreed to participate in the CoLab, four attended the December 2013 conference call. Six individuals representing three organizations attended the second in-person meeting in February 2014. Interactions among CoLab members during the phone and in-person meetings were spirited and enthusiastic. During the meetings, members indicated they appreciated the opportunity to learn about the workforce development system, and expressed interest in better understanding the specific issues or opportunities the CoLab project team wanted them to consider so they could identify how to contribute their expertise and tap resources in their networks.

At the close of the second in-person meeting, the CoLab members were asked to provide feedback, and discussed the opportunity represented simply by convening this group of individuals who would otherwise not be likely to interact with one another. They wondered if the opportunity was being maximized, noting that the presentation of the Learning Shelter was conducted in a traditional "speaker-audience" format, while the brainstorming discussion on the future of work was conducted in a participatory format more likely to spark innovation. They wondered whether the CoLab group was better suited to advising on policy or program change than catalyzing new pilot projects.

The CoLab Pivot

Following the second in-person meeting, the CoLab project team continued to maintain communications with individual CoLab members, but found it difficult to plan another group meeting due to members' busy schedules and competing demands on their time. At the same time, the CoLab staff began to identify additional pilot projects that could be conducted under the auspices of the CoLab. Logistical challenges that stalled group action and feedback from CoLab members motivated the project team to adapt their engagement strategy in the summer of 2014.

The CoLab engagement strategy shifted from co-creation to collaboration on specific pilot projects.

Efforts to conceptualize an approach to engaging CoLab members in activities through pilot projects led to a “pivot” in the CoLab’s engagement strategy. The impetus for the pivot stemmed from lessons learned during the first several months of working with the CoLab members, and a wish to build on successful practices. The CoLab project team prepared an updated work plan outlining their strategy.

The work plan noted successful aspects of the CoLab, which included:

- The **small size** and **diverse makeup** of the group.
- Members’ deep knowledge, **networks**, and status as **thought leaders** in their respective fields.
- A **distributed structure** and flexible formats for engagement.
- An orientation toward action on engaging topics.

The updated work plan also included three main insights on aspects of the work that were unsuccessful:

- **Limited capacity.** The CoLab staff was constrained by limitations on their capacity to support prototyping of each pilot project and, simultaneously, to cultivate the “strategic direction” that was needed to direct and push pilots and CoLab activities forward.
- **Absence of networking.** A primary goal for the CoLab was to leverage networks between and among members to catalyze innovation and seed pilots. Due to difficulties with managing schedules, arranging meetings, and building on momentum following discussions, members did not coalesce around any particular idea, and networking among members did not happen.
- **Lack of insight.** A “lack of insight into the user/jobseeker” experience hampered the ability of CoLab members, who worked outside the workforce development field, to find ways their interests and resources could contribute to the CoLab mission and specific pilots. Given that these members had little insight into the “challenges and barriers” facing the city’s workforce, catalyzing solutions to improve and transform the workforce development system proved difficult.

Similarly, the CoLab team was experiencing its own learning curve. MOCI had not previously worked on workforce development issues nor had the OEWD WIF project manager previously managed a technology innovation project or a federal grant. While the CoLab team consulted the literature and educated one another on their respective areas of knowledge, processes, and methodologies, the collective gaps in knowledge and the learning curve slowed progress on the CoLab agenda.

Part of the CoLab staff’s learning process involved finding ways to address these challenges and refocus activities on aspects of CoLab implementation that had been

successful. The new approach they adopted shifted the idea of working with CoLab members in a process of “co-creation”—directing the work of the group and pilots through CoLab members’ networks—to an approach emphasizing “collaboration.”

The new approach involved a more distributed group structure, in which the CoLab staff served as a hub, or clearinghouse, and emphasized the following elements: (1) engaging smaller groups to facilitate formation of relationships among CoLab members based on areas of interest; (2) identifying opportunities to tap the diverse resources represented in members’ expertise and networks; and (3) developing a strategy to “match” members with pilot projects under development based on CoLab members’ interests and expertise, and on pilot projects’ needs.

MOCI, as the City’s official innovation catalyst with greater capacity to organize events and a larger network of relationships, assumed greater responsibility for leading this direction with the help of OEWD. CoLab staff had various strategies for identifying possible pilot projects, including: looking at existing projects that were in early stages of development; looking at projects that originated from established networks within the provider community; and generating ideas to form or find projects addressing new and “hot topics.” As part of the pivot, the CoLab staff intended to take a more active role in identifying “sub-teams” of CoLab members to support specific pilot projects and their needs. The CoLab staff specifically sought to shift toward a more “user/client-centered approach, with greater engagement of actual job seekers and CBOs in the process of product and project development.”

The change in CoLab strategy reflected a more comprehensive user-centered approach to understanding and meeting needs of key stakeholders in the change effort.

Rather than focus only on the question of how to engage CoLab members, the CoLab team realized it would be important to learn what types of support pilot projects actually needed. They applied “user-centered design” thinking in the process of restructuring CoLab operations and decided to convene the leaders of pilot projects, to better understand opportunities to be supportive, add value to the workforce system, and help pilots achieve goals. The CoLab team held a meeting on November 4, 2014 with five pilot project leaders. The goal of the event, which will be further discussed in the next section, was to begin to cultivate interest and connections between pilot project leaders, learn their unique and common needs, and identify how the CoLab members might support them. Representatives from five pilots (The Learning Shelter, One Degree, LearnUp, txt2wrk, and TRAIL) met with OEWD and MOCI to outline their needs and ways that they felt they could benefit from CoLab members’ assistance.

Areas that providers expressed needing counsel with included outreach efforts, partnerships and networking, and seeing the future “differently from the past.” The future,

providers noted, included a culture of change, with the paradigm shift toward start-ups, critical human relations, and “connections with the job seeker.” The meeting ended with a discussion of next-step efforts and discussion of MOCI’s plans to begin matching pilots with CoLab members who have related expertise and resources. By June 2015, two pilots—Learning Shelter and One Degree—were undergoing matching in order to address a pilot project problem statement and enlist CoLab member collaboration.

Perceptions of the Launch and Management of the CoLab

To obtain formative feedback from CoLab members, WestEd collaborated with MOCI to jointly conduct structured interviews with 4 of the 12 CoLab members to learn their perspectives on key milestones of CoLab activities, their experience, and their suggestions for improvements. These interviews took place from June to November 2014, and members were selected either because of their varied experiences with the CoLab (i.e., attendance at meetings and involvement with pilot projects) or because they were available and agreed to participate in the interview. WestEd also interviewed CoLab staff from MOCI and OEWD at three separate points in time to track their perceptions about (1) the CoLab launch, (2) the “pivot,” and (3) lessons learned about the project and its sustainability near the end of the grant period. This section summarizes benefits and challenges identified by both CoLab members and CoLab staff.

Benefits

The CoLab provided a new forum to cultivate relationships, share knowledge, and seed innovation.

Both CoLab staff and members saw value in bringing together a diverse body of thinkers, which they viewed as facilitating the exchange of multiple perspectives on issues within the workforce system. Drawing on a diverse mix of thinkers offered an opportunity to add “freshness” to ideas and approaches to changing a system that stakeholders thought could quickly become stale. From the CoLab members’ perspectives, engagement with the CoLab was an exciting opportunity to share knowledge and resources. They also hoped that resources could be leveraged through these networks to help inform the larger workforce system on workforce trends, topics, and innovation on the ground.

It became apparent early on in the CoLab’s implementation that leveraging a diverse group of thinkers’ interests and expertise as a single and large body was a challenge. However, during the CoLab’s strategic pivot, using members as advisors where their expertise proved relevant helped to “pull” project thinking “along, and [pull] thinking together.” This advising was also described as helping to build out the workforce system. Moreover, some members expressed already having interest, involvement, or a “high level of investment” in workforce issues. The CoLab was a resource for these members to share their knowledge and expand on those interests.

Further, from the perspective of CoLab staff, the process of launching and managing the CoLab helped build capacity within OEWD to act as a catalyst for innovation within city government. Establishing capacity within OEWD to work with MOCI in applying tech-sector innovation and change management technologies to improve city services, and building MOCI's knowledge about workforce development issues, particularly in the tech sector, were viewed as important benefits and outcomes of the pilot.

Challenges

The main challenges that emerged during the CoLab's implementation were developing clear goals and a stable strategy to manage and engage members in the process of innovation.

CoLab staff tested several strategies for organizing interactions among a diverse group of thinkers that would engage their interests and accommodate their schedules. From staff members' perspectives, it was a challenge to schedule meetings with CoLab members, whose schedules were busy and fluid; assess the efficacy of large- and small-group meeting formats; and decide how to best harness the resources the group could contribute given their different perspectives on, and levels of understanding about, workforce development issues. Trying to figure out the right model for group interaction and engagement competed for priority with devoting time to implementing pilot projects and engagement activities. While the hope was that CoLab members would co-create the CoLab strategy and catalyze ideas for pilots on their own, the reality was that the CoLab needed dedicated staff to identify and broker pilot opportunities.

CoLab members voiced confusion not only about the CoLab's framework, but also about its goals and the intended outcomes of activities. While they hoped to build networks with other CoLab members, meeting formats did not support this outcome. Some described their ideas about the CoLab as unclear or "jumbled." Factors that contributed to this confusion included the amount of time that passed between meetings; questions about logistics; and a feeling that meetings were more focused on "informing" than on "actionable" agenda items. CoLab staff thought members' confusion could likely also be attributed to the fact that the goals changed and, because the nature of the CoLab became less centralized and more project-based over time, some members had more insights than others into the changing nature of the CoLab and its pivot toward supporting specific pilot projects.

The focus and pace of change in the IT sector also presented challenges.

It was also a challenge to facilitate an understanding of the different work cultures and worldviews that the CoLab members brought to the discussion of workforce development issues. Staff noted that part of "change culture" involves encountering new ways of doing and prioritizing work, and that the type of changes the CoLab focused on through its

pilots and civic engagement events (e.g., using technology to deliver services, thinking about different structures for jobs) was difficult to introduce into the public and nonprofit sectors that comprise the workforce development system. They noted some stakeholders responded with hesitance and “push back” toward the CoLab’s purpose and its activities. This resistance was viewed by CoLab staff as part of a process involved with change, and part of a generational divide within the workforce system—with younger, more tech-savvy staff being more open to the types of change the CoLab represented than older staff, who may have been less comfortable with technology and change.

Suggestions for Improvement

Suggestions CoLab members offered to help improve cohesion among the group included: having a “consistent voice” to lead the meetings; checking-in between meeting activities; and providing help with logistics. CoLab members also felt that they needed to get to know the other members better during meetings in order to recognize opportunities for innovation and collaboration, and suggested more relaxed meeting formats, such as a social gathering. They also suggested organizing CoLab members in committees to work on issues that interested them, and then have them report out to the larger group; having weekly updates or “wrap-ups;” and providing documentation on staff activities and meetings to the members.

Portfolio of CoLab Pilots and Civic Engagement Events

The original plan for generating pilot projects was for OEWD, MOCI, and experts to “tee up” issues or “pain points” for the CoLab to consider during “thinking sessions” in which the CoLab would then strategize ways to develop and test pilot projects responding to the challenges, and then follow the pilot projects’ progress to determine whether they could be taken to scale. Given the CoLab’s fluid nature, MOCI and OEWD pivoted from teeing up pain points to taking a more active role in choosing candidate pilots. Some of these candidate pilots were technology projects in early phases of development, ideas suggested by established provider networks, or service strategies which CoLab staff considered innovative. In this more active role, MOCI and OEWD solicited feedback from pilot project providers and sought to match pilots’ needs with CoLab members’ expertise and resources.

Overview of CoLab Pilot Projects

Pilots were strategically chosen to test new ideas and “hot topics,” and prioritize sector strategies that could be fundable, replicable, and lead to innovation.

OEWD and MOCI chose pilots to present to the CoLab if they addressed salient “hot topics” in the industry or tech sector. These topics included leveraging interest in the maker movement or in production technologies like 3D printing (as with the Learning Shelter), and using technology to develop employment navigation tools (as with txt2wrk,

Go.Be.Me., and TRAIL/JobScout). Being able to run with ideas and “jump on the bandwagon to try them out” meant being able to, as one staff person noted, “incubate” ideas and models. Other pilots presented opportunities to tap online employer-based learning platforms, such as LearnUp.

CoLab staff identified and established relationships with seven pilots to prototype through the CoLab that they believed held potential to change the workforce system or services. A brief description of the CoLab pilots is presented in Exhibit 3. A complete description of the pilots can be found in Appendix E.

Exhibit 3. Overview of CoLab Pilots

	Description	Target Users	Milestones	Pilot Status, May 2015
LearnUp	Online job training and placement platform	Employer engagement with job seekers and community-based organizations	Prototyping began January 2014	Communication and feedback sessions with workforce stakeholders and CoLab staff informed content for customized modules, which were planned for launch in May 2015
GoBe.Me	Online career navigation tool	Dislocated workers	Iterative feedback on design of tool began December 2014	GoBe.Me ended operations in March 2015; pilot never launched
Platform to Employment® (P2E)*	Job readiness training, mental health services, and financial literacy program	Long-term unemployed (50-years-old+), dislocated workers and veterans	Launched February 7, 2014, concluded July 2014	Provided 5 week program; 4.5 months after the program ended 75% of participants had secured employment
txt2wrk	Web-based application with intermediary to capture job listings and job seekers; uses text messages to alert job seekers to opportunities	OEWD CitiBuild staff and program participants	Testing initially planned August 2014	Rapid prototyping took longer than planned but led to insights about an unmet need; testing continues
Learning Shelter	90-day training program in technology used in the maker economy, including 2D and 3D design/printing	Underserved populations, including the homeless	Program prototyped with 5 individuals June–August 2014. Highlighted in June 2014 at the White House Maker Faire	Provided technical training focused on modern maker tools and soft skill building. Pilot seeking funding to shift program design and continue.

	Description	Target Users	Milestones	Pilot Status, May 2015
One Degree	The “Yelp of nonprofits;” aggregates services and resources on one platform	Low-income communities, community-based organizations, and service providers	Introduced to community based organizations and providers in April and November 2014	Pilot highlighted for CoLab “matching” based on needs.
TRAIL/ JobScout	Online learning platform on entrepreneurship and micro-employment	Low-income communities	OEWD and TRAIL partnered in July 2014	Curriculum and lesson content tested, but launch delayed due to change in brand for one lesson.

*WestEd conducted a separate formative evaluation of this pilot project, which was a local implementation of a program model being tested in multiple sites across the country. The P2E evaluation report is attached as an addendum to this report.

Overview of Civic Engagement Events

Civic engagement events were conducted under the auspices of the CoLab. That is, CoLab staff participated in, planned, and hosted events, with input from CoLab members, and which members were invited to attend. The civic engagement events were intended to optimize public and private sector collaboration, to promote innovation, and to suggest improvements in the workforce system. Four events were held, two of which included engagement with the same partner, the Institute for the Future. The other two events (the Civic Design Camp and The Bold Italic) focused on addressing innovation and problem-solving through tech design and on the inclusion of underserved English language learner populations in the San Francisco workforce (Exhibit 4).

While innovation was a goal for CoLab activities, staff at MOCI and OEWD also noted that they participated in and planned civic engagement events that prioritized sector strategies. CoLab staff cited the civic engagement “hackathon” as an example of an activity that prioritized a sector strategy. The central question the hackathon explored was whether it was possible to identify and match opportunities for job-sharing within a neighborhood. CoLab staff noted the question was “incredibly localized” and suggested this idea pointed to ways “people are thinking about work and living differently. That’s not something that would be on the radar otherwise.” As a result of the event, a participant and OEWD staff drafted a map for a new HireSF tool that would work like a “MeetUp.com” for jobs.

Exhibit 4. CoLab Civic Engagement Events

	Event Date	Description	Target Users and/or Audience	Outcome
<i>Civic Design Camp</i>	April 12, 2014	Hackathon aimed at redesign of HireSF	Community based organizations job providers, job candidates	Draft map of a new HireSF tool that works like a "MeetUp.com" for jobs
<i>The Bold Italic Articulate Workshop</i>	November 7, 2014	Workshop looking at English language barriers facing ESL citizens who are looking for a job	Designers, ESL experts, workforce development staff	Multiple ideas for prototyping a tool to help advance ESL learning
<i>Institute for the Future</i>	December 15, 2014 Future of Workforce Development Ecosystem presentation at City College of San Francisco	Research presentation at City College of San Francisco on possibilities and forecasts within a changing workforce	Workforce stakeholders: city workforce partners	Concept for the Future of the Workforce Development Ecosystem map
<i>Institute for the Future</i>	May 14, 2015 (at San Francisco Community Foundation)	Presentation and discussion of Future of the Workforce Development Ecosystem map	Workforce stakeholders: local and regional foundations	Future of the Workforce Development Ecosystem map

Perceptions of Pilots and Civic Engagement Events

This section summarizes CoLab staff members' perceptions of the CoLab's various pilots and civic engagement events.

CoLab Staff Perceptions

The CoLab pilots and civic engagement events were seen as delivering both immediate benefits and laying the groundwork for longer-term change.

The CoLab staff members noted that they viewed the pilots as a process of taking "baby steps" along the trajectory of "change management." These steps were innovative in and of themselves, because, traditionally, the workforce system is geared toward implementing

projects for large-scale outcomes rather than testing on a smaller scale. These “baby steps” were seen as fostering budding ideas or pilots that, if tested and proven fruitful, could further grow and lead to larger products or tools.

“A lot of this is change management,” one CoLab staff member noted. “I think for us, little doses of change and getting us ready for change is probably what we have to do to move forward. We can’t be dramatic.” The efforts to launch CoLab pilots—such as fostering CoLab member collaboration and incorporating pilot leaders’ feedback through user-centered design principles—helped build a new, innovative prototyping approach into workforce system change activities. After pivoting the CoLab strategy, the CoLab team recognized the pilots were just beginning to lay a foundation for change; they were still taking baby steps, and had not reached a point in the prototyping process to apply the tools or scale the services to create systems change.

The pilots fostered a belief or mindset among project stakeholders reflecting a more entrepreneurial approach to their work, which mirrored an industry ethos in San Francisco, such as start-up culture.

The CoLab’s fluid nature and the pace of change in the tech industry posed some challenges to staff members, although these were viewed as a natural part of an agile and iterative change process. Staff members perceived that nothing in the CoLab’s process or activities was static. On the for-profit sector side, pilot project leaders and advisors changed jobs, and their companies changed focus and strategies - and one even folded (stopped operations); these changes altered the nature of the pilots and opportunities for the CoLab to engage with the proposed pilot projects. On the non-profit workforce development service provider side, organizations struggled with their own shifts in priorities and needs, and were constantly reconsidering goals and interests. All of these changes—both in the tech industry as a whole and in the priorities of the stakeholders involved in the CoLab’s activities—made it difficult to pinpoint interests or needs for support to bring back to CoLab advisors.

The CoLab’s approach to testing pilots involved multiple strategies, including:

- **Intentionally seeking to disrupt routine workforce system operations.** Staff perceived prototyping new pilot approaches as part of both the practice of and process toward innovation and change. Facilitating opportunities to exchange ideas and develop solutions through pilot projects and civic engagement events was seen as disruptive, particularly because pilots involved emerging technology or innovative practice strategies and new ways of thinking about workforce challenges. CoLab staff members mentioned that they were in a unique position in San Francisco to harness this type of innovative and disruptive change. However, change efforts were not without internal “push back” to new tools and methodologies stemming from negative connotations, fears, or adherence to standard practices. Nevertheless, disruption was seen as a positive thing because it

allowed ideas from outside the workforce system to signal new pathways to serve San Francisco residents.

- **Increased engagement in change processes throughout the workforce development system.** OEWD and MOCI brought new stakeholders to the table to examine workforce problems and to help design solutions. In the case of the CoLab pilots, inviting stakeholders from both within and outside the workforce development system who do not typically have a voice in designing services to suggest solutions was a function of adopting industry practices like user-centered design. According to an interviewee, the engagement of new stakeholders helped lead to “all sides of the CBOs [community based organizations], and the city, and the entrepreneurs themselves, being more creative in the ways that they do things.” Project staff noted that civic engagement events and pilots were appreciated because people perceived that the government was trying to do things differently.
- **New perspectives on employment strategies.** Pilots encouraged stakeholders to view technology solutions as new approaches to helping people get jobs. Similarly, civic engagement events focused stakeholders on new ways to think about services, employment, and the future of work in the local economy. For instance, the Articulate workshop at the Bold Italic Conference and Future of the Workforce Ecosystem events demonstrated steps in the “process work” toward change. The Institute for the Future’s research and map of the workforce development ecosystem, for example, helped to “pull” the system “along a little bit.”

Next Steps

The TechSF WIF project manager left OEWD in December 2014 and the TechSF WIF project director left OEWD in April 2015, after which CoLab activities halted. Staff at MOCI noted that they hoped to continue following some of the activities that had been generated from CoLab strategies. While they are in the process of “finding homes” for some of the pilots, MOCI plans to have a dedicated staff member continue with change efforts.

Staff described the collaboration between OEWD and MOCI, which had not previously worked together, as building capacity for innovation in OEWD and knowledge about workforce issues in MOCI. Staff described the result of this collaboration as creating a “mini-innovation office” within OEWD. At the time this evaluation concluded, it was uncertain whether the capacity for innovation that had been established within OEWD (specifically through the CoLab) would be carried forward, due to the absence of staff who had led the efforts. Plans depended, in part, on resources allocated in the new fiscal year budget, effective July 2015.

Summary of Findings and Lessons Learned

The main formative evaluation findings and the lessons learned related to the CoLab are described below.

Leveraging the interests and resources of a diverse group of thinkers working toward change in the workforce system was viewed as a valuable opportunity and successful on a small scale. Through testing different formats for convening diverse thinkers and identifying opportunities to match individuals to innovative pilot projects in an advisory capacity, CoLab staff recognized that efforts to promote and pilot innovation worked best on a small scope and scale, and in a fluid structure that responded to members' expertise and interests in order to foster collaboration. The idea of promoting innovation through collaboration helped define the CoLab as a new forum in the workforce system in which government served as a "platform" for brokering valuable partnerships with outside tech organizations and design thinkers, and as a civic innovation base looking to make a difference in workforce development issues at the city-wide level.

Innovation and change within the workforce development system requires time, testing, incremental steps, and the willingness to accept both successes and failures in order to run with ideas. CoLab staff learned that taking the risk to invest in something small (e.g., multiple smaller pilots), rather than larger projects, can lead to important opportunities to engage stakeholders in the change process and can lead to relationships that introduce new ways of thinking about and designing workforce systems and services that correlate with the local economy. This risk is not without challenges, such as having to be ready to deal with strategy pivots and failed investments. Smaller investments can also take time to develop and be constrained by timelines and deadlines, such as those that characterize grants and other public funds. If timelines can be approached on a more flexible basis, efforts could more closely match the fluid processes involved in managing innovation as it is conducted in the tech industry.

Innovation and change also require being prepared to partner with practitioners in the field both for implementation and feedback. The TechSF team sought to establish a culture of learning mirroring that of the tech industry by incorporating agile development principles, rapid prototyping — or testing — of pilots, and feedback from key stakeholders. The application of user-centered design during the CoLab process was a new and transformative approach, and served as a way to incorporate direct feedback from stakeholders (e.g. technology and service providers). The CoLab focused its efforts on emerging trends and future possibilities in the workforce development ecosystem. Through this work, the CoLab developed a resource to help map strategies that can transform San Francisco's workforce development system.

CoLab activities helped build capacity for innovation within city government.

CoLab activities led to a more entrepreneurial mindset among stakeholders in the workforce development system and OEWD staff, as well as an appreciation of the opportunity to exchange ideas around workforce issues in ways that did not exist before. The Mayor's Office of Civic Innovation (MOCI) played a lead role in moving forward CoLab activities, along with the TechSF WIF project manager at OEWD. The collaboration between these two offices, which had not previously worked together, built capacity for innovation in OEWD and knowledge about workforce issues in MOCI. Staff described the result of this collaboration as creating a "mini-innovation office" within OEWD. The departure of OEWD staff prior to the end of the grant term highlights the importance of planning for sustainability.

IV. Formative Study: txt2wrk

The txt2wrk pilot was an effort conducted under the auspices of the CoLab to test the application of technology to improve the delivery of local workforce services. In response to significant growth in the local construction industry and concern about whether and how the influx of tech companies benefitted the quality of life for low-income San Francisco residents,³ leaders at OEWD wanted to learn whether text messaging would increase the speed at which job seekers in the construction industry obtained information and increase the number of job seekers receiving information about job opportunities. The txt2wrk pilot was designed to improve OEWD CityBuild staff workflow processes and communications with job seekers enrolled in the CityBuild program by implementing a software application custom developed to meet their needs. CityBuild is a unit within OEWD that provides training and job placement services focused on the construction industry. The pilot was also viewed by OEWD executive leadership as an opportunity for two units within OEWD, City Build and Strategic Initiatives, to collaborate together at level that had not previously occurred.

The custom-designed txt2wrk application was intended to (1) change the way OEWD CityBuild staff organized and maintained information by streamlining several sources of data into a single information system; and (2) improve communications processes between CityBuild staff and job seekers enrolled in the CityBuild program. OEWD leadership hoped to learn whether managing communications through text messaging would increase the speed at which job seekers received information, expand the number of job seekers who would receive timely information about job opportunities, and increase the speed with which CityBuild staff could fill staffing requests from construction companies working in San Francisco. The perceived need for the pilot was heightened by the construction boom in San Francisco, beginning in approximately 2012.

Chapter Overview. The next section describes the formative study of the txt2wrk pilot. It is followed by a description of the txt2wrk pilot, the project stakeholders, and the planned implementation approach. The section after that presents the study findings, which examine how the pilot was implemented, the challenges, successes, and suggestions for

³ As noted in the introduction to this report, the impacts of phenomenally rapid growth in the tech sector stimulated public criticism and concern from citizens' group, cultural groups, and economic development organizations over strategies to manage the transformation of the downtown corridor and escalating rents. As tensions remained high, the Board of Supervisors held a hearing on TechSF in March 2013, to help clarify how the publically-funded sector strategy was contributing to training and employment opportunities for local residents—in the tech sector and other industries in the city. During this hearing, OEWD leadership announced txt2wrk would be considered as a strategy to alert low-income residents to jobs created, in part, by the tech boom.

improvements. The chapter concludes with a discussion of the findings and lessons learned.

Formative Study Overview

This formative evaluation of the txt2wrk pilot was intended to help OEWD program managers learn from the software development and implementation experience how to improve its approach to planning and implementing technology solutions to improve workforce services.⁴ The research questions that guided this formative study were:

- How was txt2wrk implemented?
- What progress was made on intervention goals and milestones?
 - Was the intervention implemented as planned?
 - What barriers or challenges limited progress or required strategies to be revised?
 - What facilitated or accelerated the implementation of the project plan?
- What lessons can inform future work?

Data Sources

Data to answer these questions were collected through researchers' observations of and participation in planning meetings and discovery sessions; interviews with program partners; and a review of documents:

Observation. WestEd observed program activities, including the workflow before the txt2wrk application was adopted. WestEd also attended relevant planning meetings to document activities addressing themes raised in the research questions.

Interviews. WestEd interviewed key project leaders from OEWD and CityBuild, CityBuild staff, and the txt2wrk developers. The interviews included questions regarding successes and challenges with implementation, perceived benefits, and lessons learned.

Document Review. WestEd reviewed documents developed to design and support implementation of the application. This included workflow mappings, screen shots, database schematics, sample usage data, opt-in trends, and meeting notes.

⁴ An outcome study was originally planned for txt2wrk, but delays in implementing the pilot prevented outcome data from being collected prior to the end of the grant period. This formative study was conducted instead, and explores the reasons that the implementation did not go as planned.

A full description of the methodology can be found in Appendix A. This was a formative study to improve OEWD planning and project implementation, therefore the results from this study are not intended to be generalizable.

Summary of Findings

The main formative evaluation findings about txt2wrk are summarized below:

- **The txt2wrk application was not implemented as planned or within the timeline of the three-year grant.**⁵ The pilot project team encountered several challenges during the discovery and prototyping phases, adapted their approach in response, and eventually discovered how txt2wrk could fill an unmet need.
- **The discovery phase took longer than expected,** due to delays in scheduling the discovery session with liaisons and investigating the opportunity to integrate txt2work with an enterprise data system being developed and implemented at the same time the pilot was being launched.
- **Through discovery, txt2wrk developers learned that CityBuild staff had a larger role in matching job seekers to job openings than expected,** which required changes to the design and additional time to modify the software prototype.
- **The rapid prototyping took longer than planned because initially very few job seekers opted to use the service.** The team adapted their approach and the number of job seekers opting in to use the service increased.
- **While prototyping the new opt-in approach, the project partners discovered that txt2wrk can fill an unmet need: sending general program announcements to a large group of CityBuild Academy alumni,** which would be faster than calling them individually.
- **Members of the project team suggested that the implementation may have gone more smoothly if the TechSF project team were more involved when decisions were being made about the pilot's focus.**

txt2wrk Pilot Overview

The txt2wrk pilot was launched by the Tech SF project team located in the OEWD Strategic Initiatives Unit in partnership with the OEWD CityBuild program and the txt2wrk software developers, who were also members of the TechSF CoLab. The txt2wrk pilot was intended to accomplish two main goals: (1) change and improve the way CityBuild liaisons organized their information by streamlining several disparate data sources (i.e., many separate Excel files and paper sign-in logs) into a single online information system, and (2) create a software application that would allow liaisons to use

⁵ The project received a six-month extension of the grant term and testing was underway at the time this report was produced.

text messaging to communicate with job seekers in the CityBuild program about specific employment opportunities.

Pilot Partners

OEWD's Strategic Initiatives Unit was responsible for managing the TechSF grant. The WIF Project Manager was responsible for managing the txt2wrk pilot project and overseeing the software development process. The txt2wrk pilot fell under the auspices of the CoLab (described earlier in this report) and was considered part of the TechSF project's larger intentional effort to partner with companies in the IT industry to apply industry design principles and rapid prototyping to change the workforce development system and improve workforce services.

CityBuild was chosen as a partner for the txt2wrk pilot because the unit operates one of the few programs within OEWD to provide direct services to job seekers.⁶ In addition, executive leadership thought that piloting the agile software development process within OEWD could demonstrate the benefits of working with the local tech sector on creating a customized software solution to improve services for low-income residents. OEWD leadership hoped to learn whether the text messaging software would increase the speed at which job seekers received information and expand the number of potentially qualified job seekers to receive information about job opportunities.

The perceived need to communicate information about available jobs more quickly and more broadly through the txt2wrk software application was heightened by two factors. First, implementing San Francisco's mandatory local hiring policy (Local Hire) was a top priority for OEWD. Under Local Hire, all public works or improvement contracts first advertised for bid on or after March 25, 2011, were subject to a mandatory requirement for local workforce hiring. CityBuild's employment liaison staff had a role in helping implement the ordinance by referring qualified San Francisco residents to contractors (including those subject to the Local Hire city ordinance).

Many of the job seekers that liaisons served were graduates of the CityBuild Academy, an 18-week pre-apprenticeship and construction skills training program for San Francisco residents. The liaisons also sometimes helped graduates of CityBuild's Construction Administration Training Program (CATP), a semester-long program, to find jobs. Second, the rapid expansion of construction projects in San Francisco was expected to increase the volume of contractors making requests for candidates. Data from the San Francisco Planning Department indicate that the total cost of construction associated with building permits in 2011 was 3.4 billion, which exceeded the average of the prior nine years by a billion dollars (San Francisco Office of Economic and Workforce Development, 2013).

⁶ OEWD contracts with community-based organizations to deliver most direct services for job seekers.

Additionally, the value of active projects subject to San Francisco Local Hire requirements increased from \$143.6 million in 2013 to \$587 million in 2014.⁷ OWED leadership viewed txt2wrk as a way to help the Office meet these multiple objectives (i.e., Local Hire goals and anticipated increased demand from construction contractors).

The txt2wrk development team was selected as a pilot partner of TechSF after having gained the attention of OEWD by winning first prize in a hackathon to improve government services sponsored by Code for Oakland in 2011. Their winning idea was to help returning felons who (then) had limited access to smart phones and the Internet to find jobs by helping them to prepare and load resumes into a master txt2wrk database containing job listings. Txt2wrk would send out a voice and short message service (SMS) alert the instant it matched the resume to a job. The applicant could then listen to the job description and apply by pressing a button on his or her phone (Ackerman, 2011). Working from this prototype, the txt2wrk development team's role was to create the software application that would help CityBuild streamline data and speed the process of notifying CityBuild program participants of available jobs. The three developers on the txt2wrk team worked full-time jobs and managed this project as a start-up pilot of their own outside of those jobs. The team members each had over 15 years of extensive software development experience, including working with startups; developing mobile apps; and translating user needs into design solutions through user research, rapid ideation, strategy, and interaction design.

Implementation Plan

The pilot implementation plan was guided by practices commonly used in software development. It began with a discovery phase, followed by rapid prototyping, and a final phase for full implementation, in which the application would be used by CityBuild staff with all job seekers enrolled in the CityBuild program. The implementation plan assumed that job seekers would opt-in to use the text service prior to the rapid prototyping phase, to ensure those who were most willing to help test this new method and provide feedback on their experience would be engaged. The planned phases of implementation are described below.

Phase 1: Baseline Discovery—September to December, 2013

The txt2wrk application developers planned to conduct “job shadowing” activities, observing the CityBuild employment liaison staff and documenting job routines, information flows, and use of business tools and reports. Based on these data, the developers would target those processes likely to be affected by the txt2wrk application.

⁷ Projects subject to the 25% hiring requirement. Data from Local Hire for Construction Year 2 Report - March 25, 2013 and Local Hire for Construction Year 3 Report - March 25, 2014. San Francisco, Office of Economic and Workforce Development.

The txt2wrk team also planned to conduct interviews with the employment liaisons and CityBuild program manager to verify their observations and learn additional information about the nature, quality, timing, and outcomes of interactions with job seekers. As part of the evaluation, WestEd planned to observe and participate in these activities as appropriate, and concurrently collect baseline data on (1) client response times (using phone communication) and (2) total time required to complete a contractor staffing request. These data were to serve as a point of comparison for the corresponding workflow processes that would be measured when txt2wrk was fully implemented. The assumption was that the time to complete communications with job seekers and fill a contractor job request would be faster when txt2wrk was incorporated into the CityBuild job matching workflow.

Phase 2: Rapid Prototyping—January to April, 2014

In this phase, the TechSF Project Manager, the txt2wrk application developers, and a subset of CityBuild employment liaisons had planned to work together closely to test discrete application functions and related business processes. This methodology was intended to promote learning about use of the application while it was still in development. The partners expected to conduct two cycles of testing during this phase. These iterative and successive cycles of testing were expected to track how liaisons and job seekers interacted with the application while performing tasks to manage projects and complete job matching and referrals—allowing for low-impact adjustments to functionality, process, and content before expanding use of the application to a wider audience.

Phase 3: Pilot Implementation—June to December, 2014

Full pilot implementation was planned to involve all employment liaisons, each receiving training and support to follow the business process protocol developed in Phase 2. Liaisons would use the txt2wrk system to collect and manage data on projects, positions, job seekers, job matches, and referrals. The txt2wrk system was intended to generate reports developed in Phase 2 to permit analysis of process and outcome data. As the full implementation progressed, the project partners and evaluation team planned to review business process and performance data with CityBuild staff and other stakeholders to assess whether the application and/or business processes should be refined. The general planned goal was to promote continuous improvement during the full implementation in order to extend the useful life of the application.

Findings

The txt2wrk application was not fully implemented as planned or within the timeline of the three-year grant. As of April 2015, the txt2wrk application was being tested by liaisons and had not yet been tested with job seekers. The txt2wrk developers and the CityBuild

manager were working on strategies to increase the number of job seekers who opt in to receiving these text messages.

This section describes how the pilot unfolded, what was accomplished, and reasons it was not implemented as planned. The section also includes successes and staff suggestions on what could have been done differently.

The project team's efforts during the discovery phase sought to adapt to competing priorities affecting the CityBuild work flow.

Initially there was resistance to the txt2wrk innovation within the CityBuild program, which prevented the txt2wrk developers from conducting the discovery phase with the liaisons until September 2013, approximately three to four months after they had signed their contract with the city. At the two-day discovery session with liaisons, txt2wrk developers and the WIF grant project manager (in the OEWD Strategic Initiatives Unit) learned an enterprise data system that was in development, and about which they had some prior information, actually had the same intent (i.e., to streamline disparate feeds of data into one database) as txt2wrk. As one txt2wrk developer said, “[it was] unfortunate that we did not know about it earlier.” The parallel system was already in the process of transforming the CityBuild liaisons’ current work flow, which complicated the process of identifying what value txt2wrk could add to the new workflows, and contributed to CityBuild staff members’ reluctance to embrace another set of new work processes that would be added to other processes in flux.

At the same time, the txt2wrk developers saw the parallel system as an opportunity for collaboration, explaining “we were excited about it.” They viewed it as an opportunity to innovate and leverage the strengths of each product to create an integrated tool that would improve the liaisons’ workflow.

Efforts to integrate txt2wrk and the parallel system were not successful.

The project team explained that integration was postponed indefinitely because negotiating data sharing agreements between the application providers would be a lengthy process, requiring things like renegotiating contracts and technical fixes to synchronize the systems. The project team decided to continue to develop txt2wrk as a separate application and explore integration again if the txt2wrk pilot was successful.

The discovery phase took longer than expected because the CityBuild work flow was very different than expected.

Initially txt2wrk was planned to streamline four activities—job matching, communicating employment opportunities, confirming applicant eligibility, and making referrals—that liaisons conducted with CityBuild job seekers. The project team learned through discovery that the process of matching job seekers to job openings was very different than the developers and the OEWD project manager expected—namely that liaisons perform

additional functions and exercise greater judgment in brokering the match. They also learned that text messaging was viewed as supplementary to phone communication by liaisons. The developers' initial assumption was that the liaisons had less of a role in selecting job candidates to refer to contractors than they do in actual practice. For example, the txt2wrk developers learned that liaisons obtain information (e.g., whether a participant has met union eligibility requirements or earned new certifications) from external sources outside of the OEWD databases; that information is used to arrive at a short list of referrals.

The txt2wrk developers decided to refine the application based on the new information and focus the functionality on three activities: (1) communicating with clients (excluding job opportunities), (2) communicating job opportunities, and (3) managing information through a summary dashboard where liaisons could see summary statistics, such as the number of recent job seekers. A prototype application for testing was ready five months later than planned (i.e., in June 2014 instead of January 2014).

Prototyping was expanded to test the utility of the txt2wrk application with a second group of job seekers.

In July 2014, CityBuild suggested exploring prototyping with graduates of CityBuild's Construction Administration program, in addition to the program for CityBuild Academy graduates. This was not a group that the liaisons commonly served; therefore, additional time was spent to map the Construction Administration Training Program (CATP) job matching workflow and understand how it varied from the workflow mapped during the discovery phase. The biggest variation discovered was that it involved an additional step: the job request is referred to a community based organization, which then provides the liaison with a list of qualified job seekers that the liaison can contact and refer to the employer. This additional step lengthens the time to refer candidates to employers. Concurrent with this effort, work continued on seeking a group of CityBuild Academy graduates to test the prototype.

The rapid prototyping phase took longer than expected because, initially, very few job seekers elected to use the txt2wrk application due to delays between the first stage and second stage opt-in.

In June 2014, CityBuild Academy students were initially asked if they would be interested in receiving messages from txt2wrk. They were asked in person before they graduated from the academy, since they would soon been looking for work. Fifty-seven or 75% (57 of 76) of the students signed the paper form indicating they would like to receive the text messages. But due to delays, the 57 interested job seekers did not receive a Federal Communications Commission (FCC)-required text message to opt-in until August 2014, at which point just 4 of the 57 (7%) opted-in.

Given the large drop-off in opt-ins between the initial paper-based opt-in and the text message opt-in, the team shifted their approach to sending the text message soon after job seekers were asked in person. The opt-in rate increased to 58% when the lag between the first stage and second stage opt-in was reduced to one day. In October 2014, 11 of 19 (58%) job seekers opted in when they received the FCC-required text message within one business day of signing the paper form.

Through the process of conducting discovery and building a prototype, the pilot project team identified an unmet need that the txt2wrk application could fill.

Despite the delays, interview respondents reported successes and strategies that worked to move the pilot forward. Through the discovery process, the txt2wrk developers learned that txt2wrk could fill a different need of CityBuild staff: sending announcements to a large group of CityBuild Academy alumni.

The realization came about, in part, by members of the txt2wrk team attending an event for CityBuild Academy graduates to promote in-person sign-ups. At the event, two members of the CityBuild team mentioned to the developer that using text messaging to broadcast messages (such as announcing an event) to a group of people at the same time would be helpful, because it would eliminate the need to call them individually. Development efforts shifted to this focus, and work with the CATP group was put on hold.

In addition to this discovery of how txt2wrk could add value, OEWD staff also reported that they valued the opportunity to collaborate with another unit within OEWD. OEWD staff also reported that the experience helped them learn about “change management” (i.e., an approach for leading an organization to a desired goal).

Suggestions for Improvement

Reflecting on the experience, txt2wrk pilot project partners had several suggestions on things that could have been done differently, and which may have resulted in fewer implementation challenges.

- Some suggested that if the project partners had been more involved in the initial decision to pilot txt2wrk with CityBuild, then the txt2wrk developers may have learned about critical information sooner (e.g., the liaison role in the job matching process and the existence of a parallel data system). This, in turn, would have enabled the txt2wrk developers to begin adjustments sooner (thus reducing delays).
- Project members also suggested that, if the project could have shifted to testing the txt2wrk application in a sector or program where job matching involved less of a role for a case manager, then the implementation may have gone more smoothly.
- They also suggested that better communication in the beginning from OEWD leadership may have helped the CityBuild program and liaisons understand how txt2wrk was going to be used, and what the liaisons’ role was in relation to txt2wrk.

- Some perceived that not integrating txt2wrk with the parallel system was a missed opportunity to add text messaging capacity to the liaisons' workflow.

Summary of Findings and Lessons Learned

Through the implementation of txt2wrk, the development team and OEWD staff learned that their assumptions about how txt2wrk could be applied to the CityBuild workflow were inaccurate. There was an assumption by executive leadership that the speed and wide use of texting would improve communication about job opportunities to job seekers. There was also an assumption that the job matching process involved minimal screening of candidates by the liaisons. However, through the discovery process, members of the project team and OEWD leadership learned that these assumptions were not accurate. Based on this pilot, there are some lessons learned that could help future pilots surface incorrect assumptions sooner, and have the flexibility to adjust accordingly:

- **Involve the project and implementation partners in the decision making process early on, and/or conduct a needs assessment prior to choosing a candidate for software implementation.** The needs assessment can identify gaps in information and inaccurate assumptions earlier in the planning process to help select appropriate targets and strategies, and to avoid delays in the implementation of the pilot.
- **Allow the innovation to change course after implementation has begun.** For example, the txt2wrk pilot may have been more effective if it was shifted to a sector or program in which case managers played a smaller role in matching job seekers with job openings. Innovation occurs in rapid cycles in the local tech industry where there is pressure from investors looking for a return on their investment. In the case of txt2wrk, the ability to change course was constrained by commitments made in the grant agreement, as well as a pledge made to test the application specifically with CityBuild.

V. Formative Study: Employer Engagement

The TechSF sector strategy is designed to be led by the local IT industry, and its success depends on the project team's ability to develop, maintain, and expand relationships that position local businesses as strategic partners in the workforce development system. This requires a fundamental shift in thinking about ways businesses can become engaged in workforce service delivery strategies, as well as ways workforce services can be better adapted to meet the needs of the IT industry. In the specific context of the IT sector, these objectives are complicated by the rapid pace of innovation that drives growth and demand, as well as the loosely structured, informal, and extensive social networks through which business relationships are established.

The TechSF employer engagement intervention planned to use strategies adapted to the culture of, and practices within, the IT industry, to cultivate organic networks of relationships with and between workforce service providers, employers, education and training providers, and job seekers. Beginning with informal interactions with IT industry leaders to build trust and solidify interest, the engagement strategy sought to shift the paradigm of employers as advisors to one of employers as strategic partners integral to the success of program operations. With the goal of engaging businesses as strategic partners, the project sought to expand the range of options available to employers in San Francisco to engage in workforce system activities. The TechSF employer engagement intervention gave employers various opportunities for involvement (beyond just participating in an advisory group) in improving the local workforce development system, including: providing feedback on skill requirements for tech employees, hosting networking events, guest speaking, providing input on the design of project-based learning projects, evaluating presentations and projects, hosting interns, analyzing labor market information, strategizing on how to act on the results of industry analyses, and making recommendations to improve workforce training services.

TechSF's employer engagement strategies were:

- 1) Hosting engagement events that break from the traditional model of formal meetings and advisory councils and instead allow industry representatives to meet in informal settings, network among themselves, and provide feedback about their business needs to OEWD staff.
- 2) Identifying and engaging with individuals in the appropriate roles within IT organizations to support job seeker placements, curriculum design, and public partnerships.

- 3) Encouraging employer involvement to support and design education and training programs for local IT job seekers, such as experiential learning through project-based learning.

Chapter Overview. The next section of this chapter describes the formative study of the employer engagement intervention. The following section describes findings related to the engagement strategies, employers' perceptions of the strategies, and project staff perceptions of the strategies. The section after that describes the education and training findings, including what worked well, opportunities that emerged, and perceptions of project-based learning. The final section concludes with a discussion of the findings and lessons learned.

Formative Study Overview

WestEd conducted a formative evaluation of the employer engagement intervention to (1) support program development and implementation activities; (2) document how these strategies were implemented over the three years of the grant; and (3) identify in what ways they nurtured industry involvement in changing workforce services to better meet industry skill needs, recruitment challenges, and social responsibility goals. The research questions guiding this formative evaluation were:

- 1) What are the advantages and challenges of the strategies used to engage IT employer participation in workforce services and experiential learning opportunities?
 - a. What roles did key stakeholders play in engaging employers?
 - b. Were the incentives and strategies for engaging the IT employers adequate?
 - c. How did employers and workforce systems stakeholders perceive the process of engaging employers differently?
 - d. How did services change as a result of engaging employers
- 2) What practices ensure that education, training, and employment assistance programs align with and cultivate IT skills in demand?
 - a. How was input of key stakeholders used to develop programs?
 - b. What challenges and opportunities emerged in designing and implementing the programs?
 - c. What worked well and what suggestions were offered to improve the courses?
 - d. How do employers, instructors, stakeholders, and students perceive the benefits and value of the programs?

Data Sources

Data to answer these questions were gathered from interviews with staff and employers, surveys of students enrolled in project-based learning classes, observation of employer engagement events, and a review of program documents:

Employer Interviews. WestEd recruited employers who were targeted to participate in engagement opportunities to participate in interviews. The interview questions related to the research questions listed above, to explore employers' experiences, perceptions on the effectiveness and format of engagement strategies, and areas for potential improvement.

Project Staff Interviews. WestEd interviewed key project leaders from OEWD, BAVC, and faculty from CCSF and SFSU involved in project-based learning classes. The interviews included questions regarding completion of specific project milestones, the execution of specific engagement strategies, unanticipated challenges and successes, and strategies to improve the process.

Participant Surveys. Students enrolled in project-based learning courses were invited to complete a paper survey during the last class. The project-based learning student survey included questions about perceived benefit and open-ended questions about how the class changed their understanding of employment in the IT industry.

Observation. WestEd observed employer engagement events, participated in relevant planning meetings, and documented activities addressing themes raised in the research questions.

Document Review. WestEd reviewed documents developed to design and support implementation of various engagement strategies, including meeting agendas, meeting minutes, sign-in sheets, presentations, reports and other handouts, and materials produced to support events and project-based learning projects.

A full description of the data sources and analysis methods can be found in Appendix A. Methodology. While the findings presented in this formative study cannot be generalized to other populations or contexts, they can offer instructive examples of successes and challenges encountered in the process of testing new methods of engaging employers in tech sector activities.

Summary of Findings

The following findings emerged from an analysis of the data collected to support the evaluation of the TechSF employer engagement intervention:

- **TechSF project staff perceived that offering employers engagement opportunities ranging from low-commitment events (e.g., informal breakfasts and lunches) to higher-commitment events allowed OEWD to engage with a larger number of employers than a traditional model of committee meetings.**
- **Employers were motivated to participate in the engagement events for different reasons, depending on the level of commitment, and generally chose to participate in events that corresponded with their interests, needs, and available time and resources:**
 - Employers attending a low commitment event (i.e., the TechSF business breakfast) did so because they were interested in networking, learning from peers at other companies, learning more about training offered, and wanting to support the Bay Area Video Coalition (the event host).
 - Employers that offered office space and event staffing for a networking event did so because it contributed to their community service goals, helped with recruiting job candidates, and helped promote their company's brand name.
 - Employers that participated in a semester-long project with a college class did so because it contributed to their organization's community service goal and goals for supporting students and learning.
- **Employers' engagement had a direct benefit on students participating in project-based learning courses.**
 - Over 80% of students who participated in project-based learning and completed a course exit survey agreed that participation allowed them to gain skills expected by employers and increased their understanding of working cooperatively in a team.

Findings

This section describes how employer engagement occurred, and perceptions of the effort among employers, project staff, and students and faculty involved in project-based learning. The findings are intended to help guide future employer engagement efforts in San Francisco, and serve as examples to workforce development practitioners interested in testing similar practices.

Engagement Strategies

The project developed a continuum of engagement options to provide employers with the opportunity to choose participation levels that matched their time and resources.

The continuum ranged from low-commitment opportunities (e.g., breakfast and lunch events) to higher-commitment opportunities (e.g., guiding students through a semester-long project-based learning experience). The TechSF team made an intentional effort to move away from a traditional model of soliciting input through formal committee

meetings, which had characterized previous efforts. Exhibit 5 illustrates the type of engagement strategies created by TechSF.

Exhibit 5. Types of Employer Engagement Strategies

Lower Commitment	Higher Commitment
<ul style="list-style-type: none">• Attending an engagement event (e.g., business breakfast, employer lunch)• Providing feedback about training needs during an event (e.g., business breakfast or lunch)	<ul style="list-style-type: none">• Providing space and staff for hosting an engagement event• Providing staff time to support education and training programs, such as a semester-long experiential learning project• Collaborating on creating customized education and training certification programs

A related goal on the continuum of employer engagement activities was to increase the number of employers that would consider job candidates referred through the TechSF sector coordinator, the Bay Area Video Coalition (BAVC). The experience of TechSF project staff suggested that many employers in the local IT industry find job candidates through recruiters and professional networks. In response to this, project staff developed and began to use engagement events as opportunities to develop new connections with hiring managers, or to deepen existing connections.

OEWD tapped their internal IT industry knowledge, partnerships with local higher education institutions, and the expertise of their sector coordinator (BAVC) to design a range of engagement strategies intended to appeal to a wide range of employers. BAVC has 16 years of experience providing technical training to incumbent workers at over 300 local employers, and guided the IT employer engagement efforts with insights gained through this experience. OEWD and BAVC also made use of local policy, which was strengthened through Community Benefit Agreements, to encourage technology companies to support local workforce development. In 2013, six technology companies that relocated to the Central Market Revitalization Zone and received a tax credit also signed Community Benefit Agreements with the city that included commitments to “support workforce development.”⁸

OEWD also partnered with the Community College of San Francisco (CCSF) and San Francisco State University (SFSU) to help make their college curriculums more responsive

⁸ These Community Benefit Agreements are available at <http://www.sfgsa.org/index.aspx?page=5480>

to local IT industry needs. Together these partners supported engagement events and industry involvement in education and training, as described below.

Low-Commitment Employer Engagement Opportunities

Engagement events were designed to break from the traditional model of committee meetings by providing opportunities more in line with the industry practices of building networks and connections around informal engagements in the local IT industry and design community. These events included business breakfasts, periodic business panels or lunches, and “Nerd Underground” networking events. Exhibit 6 provides a summary of attendance levels at the different types of events.

Exhibit 6. Engagement Events Attendance

	Number of Events	Total Number of Employers Attending
<i>Business Breakfast or Panel</i>	3	72
<i>Nerd Underground</i>	10	65

Note: Nerd Underground attendance totals are through December 2014, and business breakfast/panel totals are through January 2015.

Source: Office of Economic and Workforce Development and Bay Area Video Coalition.

Business Breakfasts. The business breakfast events were designed to provide opportunities for participants to network, as well as for OEWD and BAVC to collect feedback about industry demand for IT skills, and feedback about businesses’ recruitment needs and plans. Project staff collected feedback by conducting informal focus groups about topics such as IT skills needs, expected job openings, and internship experience. The time commitment for attending the events was relatively low, ranging from one to two hours. Employers who attended were from a variety of industries that included media, design, retail, and e-commerce.

Panels. OEWD and BAVC also hosted periodic business panels and lunches focused on topics of interest to human resources professionals, such as professional development training. The panels and lunches also provided an opportunity to learn about businesses’ hiring and training challenges.

Higher-Commitment Employer Engagement Opportunities

Nerd Underground. A total of 10 Nerd Underground networking events occurred between July 2012 and December 2014. These events were hosted by a local employer (such as Twitter or Zynga) and were run as a networking opportunity for job seekers, freelancers, employers, and recruiters to connect. Employers that hosted the events

helped plan the logistics of the event, provided office space for the two-hour event, and often provided refreshments for the event. BAVC and OEWD were responsible for marketing the event to job seekers and other employers (who were also welcome to attend), and welcoming guests. During the events, TechSF staff mingled with participants, offering support, encouragement, and introductions between job seekers and employers, and delivered a brief presentation of training opportunities available through TechSF.

Project-Based Learning. OEWD and its education partners CCSF and SFSU also provided more involved employer engagement opportunities through project-based learning and industry-led workshops or boot camps, on topics such as the Android platform or the Python programming language. Responding to a need for a greater number and variety of experiential learning opportunities, OEWD and its educational partners incorporated project-based learning into existing courses, such as a Website Development Practicum and Software Engineering classes. The format of the project-based learning varied by instructor and curriculum but, generally, employer involvement was designed to provide real-world examples that students could use to apply what they had learned. Specific examples of employer involvement included: offering feedback about the curriculum, judging final class projects, and providing students feedback about their projects throughout the semester. Exhibit 7 shows the number of classes or workshops offered through this initiative that had an employer engagement component.

Recognizing the importance of industry-recognized credentials, OEWD and faculty created new workshops that provided college students the opportunity to learn about programming languages currently in demand in the local market. OEWD and BAVC also worked with a local technology company to design a boot camp where participants earned an industry-recognized credential related to the employer's customer service software platform.

Exhibit 7. Number of Classes or Workshops with an Employer Engagement Component

	Number of classes/workshops	Total Enrollment
<i>Classes with project-based learning component</i>	15	598*
<i>Boot camps or workshops</i>	4	128

*Project-based learning enrollment total is through March 2015. The other totals are through April 2015.

Source: City College of San Francisco, San Francisco State University, and Office of Economic and Workforce Development.

Perceptions of Employer Engagement Strategies

Employers' Perceptions

As part of this formative study, WestEd interviewed 12 employers that participated in TechSF events or projects to learn their perspectives on the engagement activities. WestEd interviewed employers who either attended a business breakfast (n=4), hosted a Nerd Underground event (n=5), or participated in a semester long project-based learning course (n=3). The findings from these interviews are summarized in this section.

Employers were motivated to participate for different reasons, depending on the level of commitment, and generally chose to participate in events that corresponded with their interests, needs, and available time and resources.

The reasons employers gave for participating varied by the type of event/activity. Employers who attended the business breakfasts attended because they were interested in networking, learning from peers at other companies, learning more about training offered at BAVC, and/or wanting to support BAVC. Employers who hosted a Nerd Underground event did so because it contributed to their community service goals, helped with recruiting job candidates, and helped promote their company's brand name.⁹ Specific reasons for participating in Nerd Underground included:

- It was seen as an opportunity to “promote [the company’s] name and brand recognition.”
- Competition for engineering talent is high, so it was “better to open the funnel wider.” Nerd Underground gives employers exposure to candidates they may not find through recruiters.
- Through the Community Benefit Agreement, the business learned that the “community hoped for employment opportunities” and this was a venue for meeting potential applicants.

Employers who participated in project-based learning participated because it contributed to their organization's community service goals, and goals for supporting students and learning. As one respondent noted, “Our organization has a legacy and tradition of doing this.” The three project-based learning employer respondents were from non-profit organizations, and none of them mentioned that the participation helped promote their organization's name.

More generally, employers explained that their likelihood of involvement depended on the time commitment required and their organization's general mission. Some respondents reported that their likelihood of participating in an event was better if it involved less time (e.g., on-site presentations, guest teaching a one-hour class). Other respondents reported

⁹ Employers who attended, but did not host, Nerd Underground events were not interviewed.

that, since community service is built into their organization's philosophy, it is common practice to participate in community service activities like project-based learning or hosting field trips.

All employers interviewed (n=12) were either satisfied (n=9) or very satisfied (n=3) with their engagement experience. The perceived benefits they reported varied by event type and included promoting job openings and the company brand, learning from human resources peers, and supporting the company's community service goals.

The most frequently cited benefits from attending the breakfasts were networking and learning from peers. For example, one respondent reported that the conversation with other human resources peers was "idea generating" and she learned from listening to the ways people "launch new ideas."

The main benefits reported by employers who hosted the Nerd Underground events were: meeting job seekers, promoting job openings, promoting the company's name, and supporting the community. The main benefits employers who supported project-based learning reported were: getting a product the organization could use, receiving a technical plan that could be used for a similar project in the future, and supporting a learning project that contributed to the organization's social responsibility mission.

[Suggestions for Improvement](#)

Employers' suggestions for improving engagement opportunities were focused on the planning stages of the events; for example, timing networking events at a company to overlap with a time when the company is expanding its workforce.

Interview respondents identified two challenges related to hosting Nerd Underground events. One respondent suggested that it would have been better to host the event at a time when their company had a lot of job openings. Additionally, the respondent perceived that recruiters from other companies were reluctant to come to another company's site for a networking event. He suggested that a neutral location may encourage more recruiters to come to an event in the future.

Two of four respondents who attended the business breakfast suggested that having more information prior to the event would have helped them understand the purpose of the event better.

Three of three respondents who participated in the project-based learning suggested that periodic check-in meetings with the professor and setting goals with the faculty in the beginning would have been helpful.

TechSF Project Staff Perceptions

WestEd interviewed five TechSF staff members about their perceptions of the advantages, challenges, and adequacy of TechSF's employer engagement strategies. Their job responsibilities included designing and implementing TechSF employer engagement strategies, events, and projects. The findings from these interviews are summarized in this section.

Identifying What Worked

Dedicating staff time to conduct employer engagement expanded connections to more employers.

During interviews, project staff stressed the importance of personal connections in engaging with employers. The project staff identified these specific practices that facilitated connections with employers:

- **Connecting with government or community affairs personnel.** This was valuable because it often led to connections with hiring managers and human resources staff, which are critical connections to help participants get job placements.¹⁰ One staff member referred to this as the “champion model”: building individual champions of the TechSF brand at a given company by beginning with lower-effort engagement (e.g., the business breakfast) and then, through correspondence and additional engagement, gaining connections to hiring managers to facilitate placements at the company.
- **Bringing employers together in informal settings** (such as the business breakfast or Nerd Underground). This practice was successful because respondents perceived that more employers attended than would have attended a more formal traditional committee meeting. This helped the project staff gather feedback and learn about employers needs from a larger group and generated more opportunities to make connections.
- **Collaborating with education partners.** Working closely with CCSF and SFSU has enabled San Francisco to offer employers a wider range of options to participate in the local workforce development system, including participating in project-based learning, offering a workshop on an industry topic (such as an in-demand programming language), and being a guest speaker in a class.
- **Coordinating internal operations.** Initial steps were made to combine business services outreach to local employers with TechSF's employer engagement efforts. Interview respondents reported initial success in leveraging staff resources, but, as described in the challenges section below, changes in the organization's structure slowed this effort.

¹⁰ Job titles of government/community affairs staff that participated in the employer engagement activities included: Community Programs Manager, Director of Employee & Community Impact, and Community Liaison.

- **Building partnerships within and across government.** As described earlier in the report, the partnership with the Mayor’s Office of Civic Innovation led to connections with the design community and tech industry.

Project staff learned about employer and job seeker needs as a result of the business breakfasts, business lunches and panels, and the Nerd Underground events.

Project staff reported learning a lot at the business breakfast and lunch events by listening to the human resources and technical staff talk among themselves about challenges and successes they have with recruitment and training. As one project staff member put it: “We learn something every time we talk to an employer.”

Project staff also reported learning how the Nerd Underground structure led to two unexpected lessons: (1) job seekers networked among themselves and found partners to collaborate with for freelance projects, such as a three-month contract to build a website for a client; and, (2) the events allowed job seekers to hone their networking skills in an environment that felt less competitive than other networking events. Job seekers experienced Nerd Underground as less competitive because the presence of BAVC staff helped participants feel more comfortable. The interview respondents observed how some participants were reserved at early events but, at subsequent events, their communication skills had improved.

Challenges

Engagement challenges included targeting outreach, cultivating successful approaches and messages, and shifting employers’ perceptions of the public workforce system as a source of highly qualified job candidates.

- **It is important to strategically target and time employer outreach.** Interview respondents expressed the importance of learning to prioritize when and why to conduct outreach. Because employers have multiple demands on their time, it is very important to know or estimate what will be valuable to an employer and communicate opportunities accordingly. For example, staff thoughtfully timed the distribution of announcement emails so as to avoid “spamming” a connection with too many requests.
- **The message and the messenger are both important.** Interview respondents identified several qualities demonstrated by staff who effectively lead employer outreach: timely communication; knowing how to write concise, persuasive emails (i.e., knowing how to communicate the main point clearly and filter out unimportant details); and knowledge of the industry skills need and work culture. Project staff also rarely made cold calls, instead relying on their network to find potential leads, such as finding space to host an event.
- **Changing employer perceptions takes time.** Staff consistently reported that it was a challenge to get IT employers to consider TechSF (and the public workforce system generally) as a source for qualified job candidates. At the same time, they

reported beginning to “get some traction,” with TechSF job candidates landing jobs with Apple and Yahoo. Staff reported three strategies that helped build the reputation of TechSF. The “**champion model**,” discussed above, helped them to successfully shift perceptions at individual companies. Staff also reported that BAVC’s **reputation**, gained through its experience providing incumbent worker training, helped provide credibility. Staff also indicated that **marketing** is another strategy for overcoming this challenge. In the technology sector, effective recruiters and headhunters build their reputation by consistently sourcing employers with talent that meets their hiring needs. To compete, TechSF is revising its marketing materials to emphasize the skills of their graduates and placements they have made with well known companies.

Staff also identified several other challenges to effective employer engagement.

- The separation of OEWD’s business services unit from the program operations unit mid-way in implementation created challenges for unified engagement across business services and job placement.
- Another staff member reported that when innovating at the systems level, it is difficult to measure success in the same kind of way that a job placement measures the success of a training provider; the staff member suggested that other measures should be considered in the future.
- One staff member reported that the utility of Community Benefit Agreements (CBA) is limited because they “have no teeth.” They are not enforceable agreements and an employer can be a good corporate citizen without a CBA. In contrast, another respondent credited the CBA with giving employers a way to be accountable to the community.

Changes in Services Resulting from Employers’ Engagement

Having a spectrum of events, activities, and communication strategies for engaging employers was a successful approach, and helped change workforce development services by expanding options, improving the quality of communications, and increasing relevance.

At the system level, through its employer engagement project, TechSF successfully created a continuum of low-commitment to high-commitment engagement opportunities, with some of the higher commitment activities emerging organically through connections with employers. For example, in conjunction with the Mayor’s Office of Civic Innovation, OEWD collected information from employers about how they perceived First Source, and plan to use the information to change their approach to communicating with employers. First Source is a city ordinance intended to connect economically disadvantaged job seekers with entry-level jobs that are generated by city contracts, such as publicly funded construction projects. At the service level, LinkedIn staff volunteered to help job seekers at neighborhood access points learn how to use LinkedIn.

Finally, staff perceived that the investment in project-based learning influenced both the system level and participant level of IT workforce development services in San Francisco. At the system level, the investment in project-based learning deepened the workforce development system's connection to local higher education institutions. At the student level, project-based learning provided students with learning opportunities that were grounded in examples from industry.

Staff and Student Perceptions on Education and Training

This section examines in greater detail industry involvement in TechSF's education and training programs. It identifies strategies for providing education and training on skills in demand that project staff and students reported worked well, opportunities that emerged during implementation, and perceived benefits and challenges of project-based learning.

Aligning Training with Industry Needs

TechSF project managers learned about employers' current and expected training needs through feedback gathered at periodic breakfasts, lunches, and panels. The information was used to adjust TechSF curriculum and training offerings. In addition, connections made through TechSF events or through project staff generated new relationships between educational institutions and local employers. For example, a local design company began referring project ideas to a college class instructor after a connection made at a TechSF event.

TechSF project staff capitalized on several opportunities to expand training and education offerings. Building on knowledge gained through planning project-based learning classes and gathered at TechSF employer engagement events, TechSF project staff and college faculty created a series of workshops for students to learn about programming languages commonly used in the local industry. In the spring of 2014, one of the project-based learning courses at City College of San Francisco was cross listed as both a Computer Science course and a Computer Networking and Information Technology course, and was co-taught with a Multimedia Arts course. This cross-listed format expanded access to the course by more students. In addition, in the final year of the grant, TechSF collaborated with a local software company to create a boot camp for TechSF participants to concurrently learn customer services skills and gain a basic understanding of the company's customer support software. The curriculum was intended to make TechSF participants more competitive job candidates when applying for jobs that require knowledge of the software.

Students, Instructors, and Employers Perceived Benefits from Project-Based Learning

Students enrolled in project-based learning classes reported that the main benefits of participating in project-based learning were learning new skills and working in a team.

A majority (82%) of student survey respondents agreed or strongly agreed that participation in project-based learning allowed them to gain skills expected by employers. For example, students reported a variety of gains from participation, including learning about “developing pages [and] adding widgets and plugins” and “learning various languages used in web development.” One respondent noted that “it forced me to explore different areas of engineering that I would have never thought of specializing in. It pushed me to really learn and apply what I’ve learned throughout my four years in school.”

Project-based learning changed some students’ understanding of employment in the IT industry. Students reported learning about the software development process and how to work in a team. As one student explained, “I learned how a team is organized and the product is developed by a team by following Software Engineering processes in a cohesive way [sic].” Another student reported, “Programming is not the most important part. Planning is the most important.”

Approximately 85% of student respondents agreed or strongly agreed that participation in project-based learning increased their understanding of working cooperatively in a team. Students’ responses to open-ended questions commonly referenced the benefits of learning to work in a team, including the following: “[I had a] good experience working in a team and managing relationships between team members, client and designers;” “[I learned] how to effectively work in a team and manage my time [with] the team;” and “[I learned about] working with a group and learning to lead and be led.” More detailed survey results about students’ perceptions on benefits can be found in Appendix C. Project-Based Learning Survey Results.

Instructors perceived that project-based learning helped students build their technical skills and increased their confidence. For example, one respondent noted that the “hands-on” approach of the class was beneficial for building skills.

Exhibit 8. Participants' Perceptions about Skills Gain and Teamwork



Remaining responses are: 12.5% neutral, 5% disagree, 0.5% strongly disagree (n=182)



Remaining responses are: 8% neutral, 6% disagree, 1% strongly disagree (n=125)

Source: Participant survey 2014–2015.

Both students and instructors also appreciated the practical and real world experience they gained from the project-based learning. Students reported a variety of ways in which the direct exposure to real-world business scenarios helped. For instance, they indicated that project-based learning provided them with a greater understanding of how to apply their skills; increased their perceived relevance of the work, which in turn made “effort easier” and made “communication imperative;” and allowed them to “improve” their portfolio of sample work. One instructor noted that his/her teaching is “aligned with the relevant employment trends as a result of this participation.” Another instructor mentioned that “It was helpful to see a cross-section of projects currently in demand.” Other benefits mentioned by instructors included keeping up with current technology and being able to learn what the job-market demands were, and to tailor both teaching and projects to help students in that market.

As reported earlier in the chapter, three of three employer interview respondents reported benefits of project-based learning, which included: getting a product or technical plan their organization could use, and supporting a learning project that contributed to their organization’s social responsibility mission.

Students’, Instructors’, and Employers’ Suggested Improvements

Instructors, students, and employers identified different challenges with respect to project-based learning. The instructors expressed that obtaining employer participation was the primary challenge. Suggestions to address this challenge included focusing on

securing employer participation through “face-time” and an “elevator pitch,” and emphasize that a criterion for employer selection is an assessment of “how serious they are about working with the class.”

The most common student suggestions for improving the project-based learning experience were about improving team communication. As one student reported: “Similar to how the team leads were interviewed, I think students should all be interviewed or assessed for their position like backend, frontend.” Other suggestions included encouraging the faculty to have a more hands-on role in student projects.

As reported earlier in the chapter, employer interview respondents suggested that meeting with the instructor more often may have improved the project-based learning experience. One respondent suggested that there could have been better communication with faculty to ensure that the project experience was reinforcing what was being learned in class.

Summary of Findings and Lessons Learned

Offering a range of engagement choices to employers proved to be successful, as measured by employer’s perceived benefits and project staff’s perception that TechSF reached a larger number of employers than they would have with traditional committee meetings. Further, information gathered from employers attending events shaped training curricula and offerings to be more responsive to employers’ and job seekers’ needs.

Attendance levels at these events is a critical factor for gathering a wide range of feedback from employers about challenges and solutions to recruiting, training, and other talent development challenges. TechSF’s ability to generate employer attendance—ranging from 20–40 employers at each event—is likely due, in part, to BAVC’s strong connection to the employer community built through its 16 years of experience providing incumbent worker training to local companies.

More generally, the findings from interviews with employers, project staff, and faculty about beneficial and effective employer engagement can be summarized into three guiding principles:

- **Create a range of valuable opportunities for employers and businesses**, from opportunities with minimal time commitments to opportunities to provide space for an event, or to collaborate with local education institutions. Also consider who the audience is when creating opportunities. For example, the business breakfasts were designed more for hiring managers or human resources staff, because they are more informed about the training and hiring needs of their companies; whereas, the contact for hosting the Nerd Underground events tended to be a staff person focused on corporate responsibility (e.g., job titles included Community Programs Manager or Community Liaison).

Creating value also extends to job placement services. By referring candidates that are well matched to an employer’s job postings, TechSF can better compete with

industry recruiters who specialize in referring qualified candidates to employers. Using industry recruiters is a common practice among employers in the IT industry.

- **Craft your communications strategically.** Offering employers many opportunities instead of asking for their contributions tends to be more successful, because it gives employers a choice of how to spend their limited time and resources. Additionally, interview respondents stressed the importance of personal connections (i.e., avoiding cold calling) to facilitate communications. Personal connections emerged from the events, such as the business breakfasts, and through existing relationships of well-networked staff.
- **Consider the policy environment and local industry trends.** The TechSF initiative leveraged existing policies and organizational structures to increase their employer engagement capacity. First, TechSF increased coordination with business services, and efforts continue. Second, two interview respondents referenced the positive influence of the Community Benefit Agreement (between the city and a technology company) on employer participation in hosting a Nerd Underground event. Third, looking to the future, two interview respondents reported plans to take advantage of the increased interest among software companies to increase diversity in their workforce.

Guided by these principles, employer engagement helped project staff make new professional connections with hiring managers at local IT companies and deepen existing ones in two primary ways. First, TechSF leveraged the existing experience (and corresponding professional contacts) of its Sector Coordinator (BAVC), which has and continues to provide training to incumbent workers in the IT industry. Second, TechSF built new connections through what one respondent referred to as the “champion model”: TechSF staff established a professional connection with a person at a company (not necessarily in human resources, but perhaps in the corporate responsibility department). Then that initial connection (often occurring through a TechSF event) led to a connection with hiring managers in various departments of the given company.

VI. Outcome Study: Talent Development Intervention

The goals of TechSF's talent development intervention were (1) to design innovative services that met both job seekers' and employers' needs for skills; and (2) to place San Francisco residents in local tech industry jobs. Services were designed by the project team, which included the OEWD Program Operations Manager and the Bay Area Video Coalition (BAVC). Services were delivered by BAVC, the sector strategy coordinator for all services (not only WIF grant-funded services) offered through the TechSF initiative.

The TechSF initiative implements an array of talent development services—including technical training, career management workshops, and other job seeker services—to help unemployed and under-employed individuals meet the skill needs of the local IT industry. The Talent Development Intervention funded by the WIF grant developed a suite of career management workshops; the bulk of Tech SF technical training was funded by a braided stream of other federal, state, and local resources. Through TechSF, participants enrolled in technical training tracks in areas such as web development, programming, and user interface and user experience (i.e., UI/UX) design. Training participants also had the option to attend career management workshops, created with WIF grant funds. This outcome study examines the value the new suite of career management workshops added to the existing array of services.

The career management workshops lasted one to two hours and offered help with the job-search process. The career management workshops covered traditional job search topics, such as resume development and review, developing a personal brand, and interview tips. The project team also designed workshops on entrepreneurship to meet a previously unmet need, developing unique and industry-relevant instruction offered in an environment—at BAVC's office—that is consistent with the culture and norms of the tech industry. The entrepreneurship workshops provided information and guidance with a special emphasis on freelance IT work, such as requirements related to running a sole proprietorship, tips on managing inconsistent cash flow, advice on how to pay self-employment taxes, and goal-setting for freelancers.

The portfolio of career management workshops (i.e., the workshops covering both traditional job search topics and topics related to entrepreneurship and freelance work) was intended to complement the technical training. The project team organized the workshop schedule so that participants could take as many (or as few) of the workshops as they wished; there were no requirements or prerequisites.

BAVC staff also assessed participants' job search skills and recommended workshops that could enhance their job search skills. Staff also provided job placement assistance through individualized job search coaching (e.g., resume and portfolio review, helping participants leverage their strengths) and sharing job leads.

Outcome Study Overview

This outcome study focuses on understanding the influence of the career management workshops (which were created through the grant) on technical training participants' employment status, as well as the perceived benefits of the workshops. WestEd conducted an outcome evaluation to measure the association between technical training participants' workshop attendance levels and employment status. Additionally, WestEd gathered survey data on workshop participants' perceptions of the career management workshops.

The main research questions guiding the outcome evaluation were:

- 1) Among technical training participants, is there a positive relationship between attending more TechSF workshops and being employed after receiving services?
- 2) Among technical training participants who are employed after receiving TechSF services, is there a positive relationship between attending more workshops and earning higher wages?
- 3) What were career management workshop participants' satisfaction levels with the workshops, and how did they perceive workshops influenced their job search?

These questions were answered using data on two groups of participants. Research questions 1 and 2 were answered using data on a group of participants who enrolled in technical training and had the opportunity to attend career management workshops. Some technical training participants did not attend any workshops, while others did. Our non-inferential regression model tests the assumption of whether higher levels of workshop attendance are associated with a higher likelihood of employment and higher wages. Since the methodology used does not adjust for selection bias (i.e., it does not allow for disaggregating the influence of workshop attendance and the job seeker's own effort), the outcomes of this evaluation are not generalizable.

Research question 3 was answered using data on a larger group of participants. The evaluation team gathered qualitative survey data from all career workshop participants, which included people who attended both the technical training and the career management workshops, as well as people who did not participate in the technical training but did attend career management workshops (as some BAVC career management workshops were open to all eligible job seekers seeking services through TechSF). These data were gathered to supplement the findings from the outcome study

with qualitative feedback about the career management workshops, to help improve the services.

Data Sources

Data to answer the research questions were obtained from several sources: administrative data about participants enrolled in technical training; surveys of workshop participants; and interviews conducted with BAVC staff and the OEWD Program Operations Manager:

Administrative Data. BAVC provided WestEd with demographic information about technical training participants and records of participants' attendance at workshops (if any). Additionally, BAVC provided WestEd with information about technical training participants' placements into new jobs, including information on placement status, wage, job title, employer, and type of work (permanent or contract).

Workshop Participant Surveys. WestEd gathered data about workshop participants' perceptions of the career management workshops through surveys distributed at the end of workshops. Surveys were distributed at workshops occurring between May 2014 and January 2015. The surveys explored participants' experience in and satisfaction with the career management workshops.

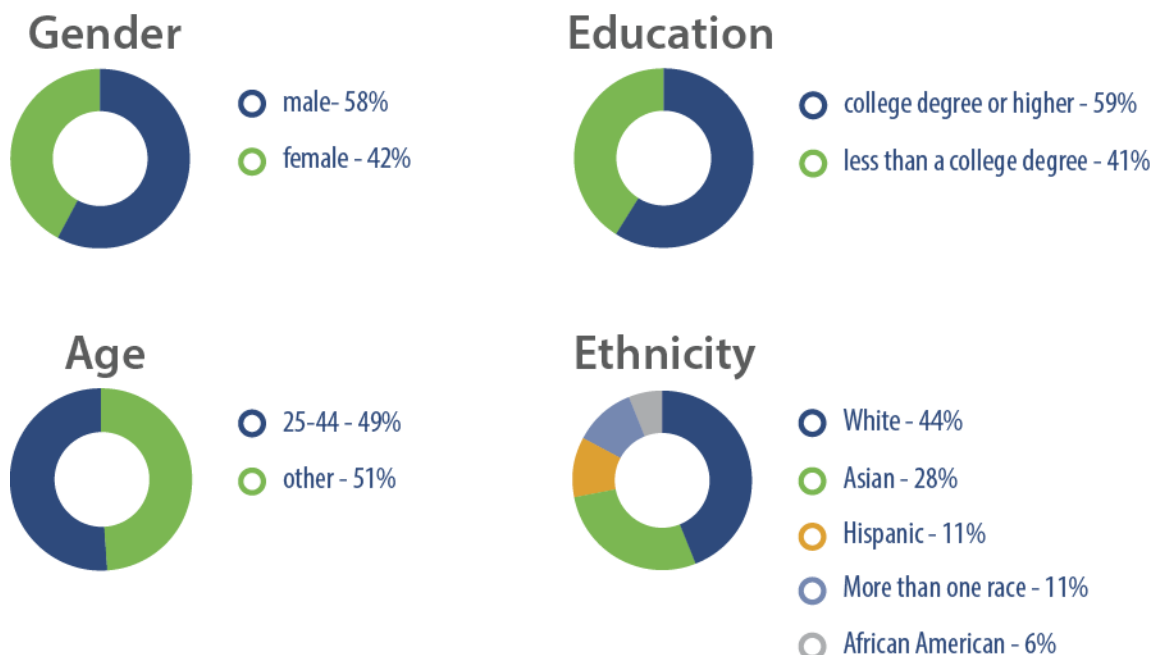
Interviews. WestEd interviewed BAVC staff and the OEWD Program Operations Manager involved in planning and delivering talent development services funded by the WIF grant about successes and challenges with implementation, perceived benefits, and lessons learned.

A full description of the methodology can be found in Appendix A. Methodology.

Study Participants

One hundred forty-nine individuals who participated in technical training and had the option to attend career management workshops were included in the outcome study. Nearly 60% of these participants had a college degree or higher, 58% were male, and 49% were between 25–44 years old. Just over half (56%) were not White: 28% were Asian, 11% were Hispanic, 11% were more than one race, and 6% were Black or African American (Exhibit 9). The full demographic profile of participants can be found in Appendix D, Exhibit D1.

Exhibit 9. Talent Development Participant Demographics



Source: Bay Area Video Collation, 2014.

Summary of Findings

The main outcome evaluation findings were:

- **There was a positive and significant association between the number of career workshops training participants attended and their likelihood of finding a new job.**
- **Among the technical training participants employed after receiving services, 59% were working in contract positions.** Employers included Yahoo, Salesforce, and eBay, with participants working in positions with job titles such as Service Desk Analyst, IT Provision Technician, and Web Developer.
- **Over 80% of workshop participants perceived that participating in the career management workshops improved their ability to communicate during an interview, identify job leads through their professional network, create a resume/portfolio that effectively communicated their skills, and start their own business.**
- **BAVC staff perceived that career management workshops were beneficial to participants because participants learned how to communicate their skills, identify job leads through their professional network, and learn strategies to succeed at freelance work.**
- **Career management workshops were designed to be responsive to feedback gathered from employers and job seekers.** For example, knowing that that local IT hiring managers valued “cultural fit” (i.e., candidates that have the qualities that a given company tends to value most in their employees), BAVC staff created a workshop about workplace culture that taught participants how to learn about company culture and to self-assess whether the environment is best for them.

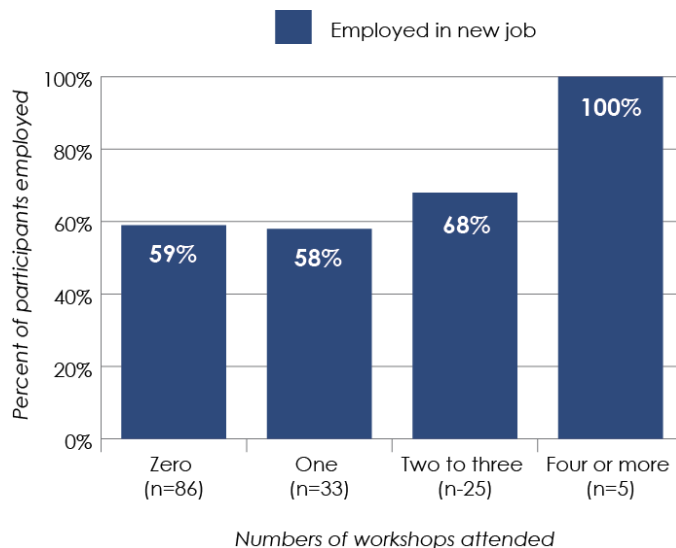
The next section presents findings about employment outcomes, participants' perceptions of the career management workshops, and TechSF project staff perspectives about implementation of job seeker services, including the career management workshops. The chapter concludes with a discussion of the main findings and lessons that could inform similar efforts in other regions.

Findings

Employment Outcomes

As depicted in Exhibit 10, of the 149 technical training participants included in this study, 68% of training participants that attended two or three career management workshops found a new job, compared to 59% for training participants that attended no workshops. The overall employment rate for this sample of individuals who took part in TechSF technical training services was 62%.¹¹

Exhibit 10. Percent of Technical Training Participants Employed, by Number of Career Management Workshops Attended



Total Technical Training Participants n=149

Total Technical Training Participants Employed n=92

Source: Bay Area Video Coalition, 2015

¹¹ The employment rate is likely a lower bound for a few reasons. First, once job seekers stop regular contact with BAVC after they complete training, they are less likely to report their employment status. Second, program staff reported anecdotally that some participants who are employed do not provide employment documentation due to privacy concerns. Third, additional participants continued to receive training (and obtained new jobs) through TechSF beyond the period of this grant and are not included in this sample.

Statistical Association between Attendance and Employment Outcome

We utilized a logit regression model to examine the association between the number of career management workshops attended and employment status, where employment status is whether a person obtained a new job or not. We found a positive and statistically significant association between attendance levels in the career management workshops and probability of employment. Technical training participants who attended an additional workshop were 1.3 times more likely to obtain a new job than participants who did not, after accounting for gender, age, race/ethnicity, and education level (Exhibit 11). A second model that included no control variables revealed no statistically significant association between attendance levels and probability of employment.

The findings do not imply causation between attendance and employment, because the model does not control for unknown or unmeasured factors. For example, instead of workshop attendance leading to employment, it may have been that a characteristic of certain technical training participants (such as their motivation) influenced both their attending a workshop and their employment status. Even though we cannot isolate the influence of the career management workshops themselves, the results suggest that the workshops could be helping technical training participants find jobs. The full regression results can be found in Appendix D.

Exhibit 11. Odds Ratio Estimates for Number of Career Management Workshop Attended

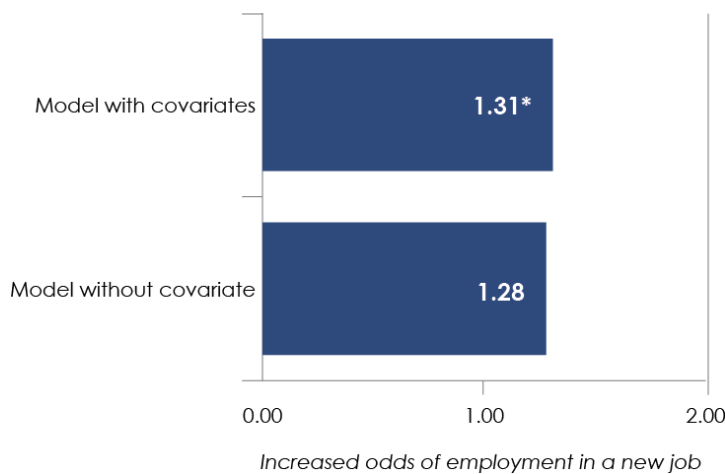


Figure reads: Each workshop attended increased the odds of employment by 1.31 for model with covariates.

Note: The model with covariates controls for gender, age, race/ethnicity, prior education, and number of workshops attended. All variables are insignificant except number of workshops attended. R-squared is .0481. The model without covariates includes one variable: number of workshops attended. The R-squared is .0219.

*statistically significant at p-value < .10

Wages

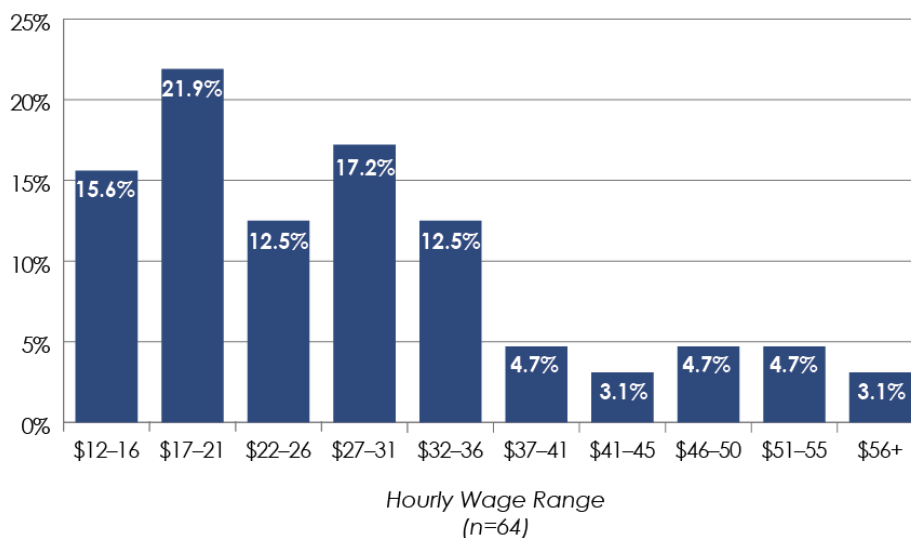
For the 64 technical training participants who obtained new jobs *and* reported their wages earned in that job, WestEd also examined the statistical relationship between their hourly

wages and their career management workshop attendance levels using multiple regression models.

The wage regressions revealed that workshop attendance, after accounting for gender, age, race/ethnicity, and education level was not significantly associated with higher hourly wages. The lack of a statistically significant association may be due to the small number of observations or reporting bias (among the 92 participants that were employed in new jobs, just 64 [i.e., 62%] reported their hourly wages).

Among the 64 technical training participants who reported the wages earned in their new job, the average hourly wage was \$30, and the median was \$26.75. As depicted in Exhibit 12, approximately 37.5% earned between \$12–\$21 an hour. Another 30% earned between \$22–\$31 an hour, and the remaining 33% earned over \$32 an hour. Because the average includes data from just 64 of the 92 employed in new jobs, these numbers may not be representative of the full sample.

Exhibit 12. Hourly Wage Distribution in Participants' New Jobs



Note: Ninety two participants obtained new jobs. This wage distribution is only for the 64 participants who obtained new jobs and reported the wages earned in their new jobs.

Source: Bay Area Video Coalition, 2015

Type of Employment

To learn more about technical training participants' employment outcomes, the evaluation team looked at where they were employed (regardless of whether or not they had participated in a career management workshop). Among the 92 technical training participants who obtained new jobs, the majority (59%) was employed in contract jobs (Exhibit 13). Contract jobs set a limit on the duration of employment or the quantity of the work produced. For example, contractors may be hired to design a website or to staff a help desk for 3 months.

Exhibit 13. Types of New Jobs Obtained

Type of Employment



Source: Bay Area Video Collation, 2014–2015.

Technical training participants obtained contract employment with companies such as Yahoo, Salesforce, eBay, Adobe Systems, and UbiSoft, with job titles of Service Desk Analyst, IT Provision Technician, Web Developer, Video Producer, and Freelance Designer & Production Artist. The positions had an hourly wage range from \$15 an hour to \$40 an hour.

Participant Perceptions of Workshops

Participant feedback surveys were administered to all workshop attendees, whether they had participated in technical training or not, after each of the career management workshops,¹² which all covered different topics related to career management. Because the individual workshops covered different topics, participant survey results are reported separately by workshop topic area (i.e., the workshop survey responses are not aggregated together across topic areas) except where otherwise indicated.

Participant Satisfaction

Across all the workshops, the vast majority (94%) of the 413 total workshop participant respondents was satisfied or very satisfied with the workshop they attended. The levels of satisfaction reported for individual workshops ranged from 100% to 77% of participants reporting they were satisfied or very satisfied. For most workshops, 100% of respondents were very satisfied or satisfied. Appendix D provides the level of satisfaction reported for each workshop.

Perceived Benefits

Workshop participants perceived that attending the workshops improved their job search skills. Workshop survey respondents overwhelmingly agreed or strongly agreed (100%; n=45) that attending the communication/interviewing workshops improved their ability to communicate during an interview. Just over 95.5% (n=66) of those who attended

¹² Participants that attended workshops between May 2014 and January 2015 were invited to complete the exit survey. Workshop participants may or may not have been enrolled in training at the time they completed the survey. The workshops were open to all job seekers interested in the topics.

the resume workshops agreed or strongly agreed that these sessions helped them learn how to create a resume/portfolio that effectively communicated their skills, and 87% (n=38) agreed or strongly agreed that attending the networking workshop improved their ability to identify job leads through their professional network.

The majority (82%; n=76) of respondents perceived that attending workshops about freelancing improved their ability to start their own businesses. TechSF created the freelancing workshop to address needs in the local IT labor market, which is characterized by a strong segment of freelance work. Participants' comments about the workshops included: "Very informative and realistic about what to consider when freelancing!" "Relevant, relevant. Great speakers. Great material. Thoughtfully delivered. Thank you."

Exhibit 14. Participants' Perceptions about Ability to Start a Business



Note: 18% of the 76 respondents were neutral
Source: Participant Survey 2014-2015

Approximately 88% (n=26) of respondents attending the work culture workshops agreed that the workshops helped improve their ability to communicate with potential employers and clients. BAVC offered workshops about work culture because they learned through their employer engagement efforts that when employers make hiring decisions, they consider "cultural fit" to be among the most important factors. Cultural fit encompasses the qualities that a given company tends to value most, which may vary across types of companies (e.g., start-up companies and more mature companies may have different cultures).

Respondents reported various ways that the workshop influenced their outlooks: "This class gave me a complete new outlook on job hunting. Very helpful class. Glad there was work interacting with the other students in the classroom." "Great instruction on how to search for jobs. The session forced me to think honestly about what I'm looking for. Raised awareness."

Exhibit 15. Participants' Perceptions about Ability to Communicate



*12% of the 26 respondents were neutral
Source: Participant Survey 2014-2015.

Respondents were also provided with an opportunity to offer comments about their workshop experience. The responses included the following suggested topics related to traditional job search skills:

- Add a workshop about “cover letters.”
- Add a workshop for “job transferring (career changers).”
- Add a workshop about “company research.”

Respondents who attended the freelance workshop offered ideas for several topics on which they wanted more information, many of which BAVC has offered during the term of the TechSF grant. The list of topics provides anecdotal evidence on information freelancers need to support their careers in the IT sector:

- “More workshops on starting and establishing or running the business, taxes.”
- “Please have the tax ninja come back.”
- “More on business strategy as a freelancer.”
- “Workshop on finding the best clients and rates.”
- “Finding work/bidding/pricing would be a good follow-up workshop.”
- “Also an in-depth contract writing proposal workshop.”
- “Focus on creating a contract to have clients sign, as opposed to working for a company and negotiating their contract.”

Staff Perceptions on the Implementation Experience

The evaluation team spoke with the TechSF project staff at BAVC and OEWD involved in developing, managing, and providing talent development services to learn their perspectives on implementation of the career management workshops and talent development services in general. Interview respondents’ roles included program managers, job counselors, and talent scouts. The interviews focused on learning what worked, the challenges experienced during implementation, and plans for continuing the effort after the grant period ends.

What Worked

Project staff reported that the career management workshops were beneficial to participants because they helped participants learn to communicate their skills, identify job leads through their professional network, and understand nuances of the local labor market (such as strategies for succeeding at freelance work). Project staff believed that participants who attended the workshops were more successful in their job search because they learned that it is *both* job search strategies and technical competencies that lead to a job. Staff reported that some participants thought that technical competencies were enough and/or that searching passively online was enough, and that the workshops helped change their perceptions.

Staff thought the career management workshops were helpful, in part, because the topics responded to feedback gathered from local employers and job seekers. For example, workshops on work culture were added based on service managers' knowledge (learned through experience and repeated interactions with employers) that employers consider cultural fit when choosing between job candidates. Similarly, a workshop entitled "Life Begins at Fifty" was developed to respond to the unique needs of older job seekers to assess their skill sets, and unpack the perceptions that employers only hire young people.

Project staff also perceived that the technical training and the career management workshops provided job seekers with a peer support network. Unemployment is often a stressful experience, and staff observed that the personal support participants received through interacting with fellow job seekers helped improve their confidence. Learning from that experience, project managers added a peer support group workshop that helped interested job seekers self-organize a peer support group for themselves.

The experience and reputation of the service provider (BAVC) facilitated successful outcomes on job referrals. With regard to facilitating placements for participants, project staff explained the importance of working with partners who are known and trusted in the industry. They credited BAVC's 16 years of experience providing incumbent worker training to IT employers through the state's customized training panel as one of the main reasons human resources staff and hiring managers in local companies regularly considered job candidates that BAVC referred, and why they periodically asked BAVC for job candidate referrals. Staff also reported that their eligibility and selection process for the technical training programs was important, because the staff was able to focus on selecting job seekers that were a good fit with the services and would have a better chance of succeeding in and benefiting from the training and services offered.

Challenges

Staff reported several challenges related to job placements.

Shifting some employers' perceptions of the public workforce system and TechSF services was challenging. Staff perceived that it was more of a challenge to refer candidates to IT companies that had little or no prior knowledge of TechSF (or, more generally, the local public workforce system), because some employers perceive the local public workforce system as bureaucratic and slow to respond.

Follow-up on job referrals to learn about employment outcomes was difficult. Staff reported that some participants were reluctant to provide supporting documentation for their new jobs because of privacy concerns. For example, if a participant obtained a contract job and did not plan to report the income on their taxes, they were reluctant to report the job to staff.

Rules for reporting job placements were also perceived as a challenge. The regulations did not allow multiple placements to be reported for the same person. Staff reported this rule did not account for employment trends in the local labor market, in which job seekers obtain multiple successive, and sometimes overlapping, short-term contracts through leads provided by TechSF services staff. The rule constrained the ability of staff to report positive employment outcomes associated with staff efforts. Accordingly, staff suggested adding a new measure to track (and give credit for) multiple placements for the same person.

Next Steps

The TechSF project team has plans to continue the workshop series after the grant period ends. They also plan to expand services based on insights they learned during the grant period. Most notably, they learned that they need a more formal structure for connecting freelancers with employers. Project staff are currently developing, with input from employers and freelancers, a locally branded website that showcases freelancers' work portfolios and skills, and allows employers to filter candidates by their specific needs (e.g., Developer, UX designer).

Summary of Findings and Lessons Learned

This outcome evaluation demonstrated that participants benefited from attending career management workshops. A majority of workshop participants perceived that attending the workshops improved their job search skills and improved their ability to start their own business. Additionally, training participants who attended more workshops had a higher likelihood of finding a new job, compared to those with lower attendance levels. The positive association does not imply a causal relationship because the evaluation approach does not allow us to separate the influence of workshop attendance from the job seekers' own job search efforts.

In general, placements for the group of technical training participants included in this study were at a range of IT companies, including well known technology companies such as Yahoo, Salesforce, eBay, and Adobe Systems. Job titles for placements included Service Desk Analyst, IT Provision Technician, Web Developer, and Video Producer. Fifty-nine percent of participants who were employed after participating in training services were employed in contract positions.

The Workforce Innovation and Opportunity Act (WIOA, 2014) mandates local areas to include entrepreneurial and freelance skills training in their program planning, recognizing these skills are becoming increasingly important in helping job seekers better match their talents to regional labor market conditions and businesses' needs. The results of this evaluation can inform other localities as they plan entrepreneurial skills training, along the lines of the types of training mandated by the WIOA. Topics that survey respondents in the freelance workshops reported being interested in included:

- The tax implications of working as a freelancer, and how to prepare taxes accordingly.
- Business strategies for freelancers, such as strategies for finding work and setting prices.
- Establishing and negotiating employment agreements, such as sole proprietor contracts with clients.

Lessons gained through this evaluation that may inform similar efforts, include:

- **Short-term workshops are an effective way to tailor services to meet the needs of industry hiring practices and the local labor market.** The IT industry changes rapidly, both with respect to the technical skills that are in demand and the timing of the growth and demand. In the case of TechSF, workshops were added to address the opportunities and challenges associated with IT freelance work to reflect the reality of hiring practices of the local tech industry.
- **Learn what factors employers prioritize when choosing among a pool of qualified job candidates.** This information can be used to develop workshops on relevant topics. For example, because employers prioritize cultural fit (i.e., the qualities that companies value most in their employees) when making hiring decisions, project managers added a workshop on “cultural fit” that taught job seekers how to learn about company culture and to self-assess whether the environment was best for them.
- **Job candidates referred by the public workforce system can compete with industry recruiters when the public workforce system adapts their approach to mirror the local industry.** The TechSF initiative gained recognition as a source for qualified job candidates, in part, by leveraging the deep employer connections that a local non-profit had gained through sixteen years of experience training incumbent workers through the state’s customized training program. Additionally, the initiative designed effective eligibility and selection criteria that allowed it to select candidates who were prepared to use and benefit from the services; accordingly, the placement services mirrored the practice of local

recruiters who compete by offering local IT companies job candidates with skills that fit employers' needs.

VII. Cost Analysis

The purpose of the cost analysis was to examine how grant funds were distributed across grant activities. Because some of the costs were associated with activities to achieve change in the workforce development system (system-building), this chapter first discusses the total system-level costs, and then describes per-participant costs, which were calculated based on costs of implementing the services provided directly to individual participants. The information from the cost study can be used as a point of comparison to inform the design and implementation of similar initiatives.

The research questions guiding the cost study were:

1. What were the costs of the TechSF project?
2. What was the cost per participant served for each participant service (i.e., project-based learning, talent development workshops, Learning Shelter)?

Data and Methodology

WestEd obtained all data for the cost study from the TechSF project team.

Expenditure (cost) data: WestEd obtained expenditure data organized according to type of expense (e.g., costs associated with grant management, system-level activities, and participant services). The participant services costs were further broken down into three services. The costs included and leveraged funds that contributed to grant activities, as applicable.

Participant services administrative data: WestEd obtained data from program staff on the number of participants in each participant-serving initiative. Participants included individuals who enrolled in project-based learning, talent development workshops, and one CoLab pilot (the Learning Shelter).

Analysis

To address the research questions, WestEd separated the costs into two categories:

(1) system-building¹³ (i.e., the CoLab, txt2wrk and other CoLab pilots, Employer Engagement, Civic Engagement/Learning Network Events, and grant management and evaluation); and (2) the participant services. The system-building costs were not included in the cost per participant because they are long-term investments in the system

¹³ Not all system-building activities funded by the grant were the subject of this evaluation. However, all grant activities are included in the cost study. The complete list of system-building activities is as follows: the Innovation Engine Pilots and Data Lab, txt2wrk, CoLab, Employer Engagement, Civic Engagement, Learning Network Events, and grant management and evaluation.

infrastructure. Future costs studies that examine participation over a longer period of time could include them.

WestEd calculated the cost per participant by dividing the total participant services costs by the total number of participants related to the specific participant service (see equation 1, below).

$$\text{[Equation 1] Per participant cost} = (\text{total costs}) / (\text{Number of participants})$$

After calculating the overall cost per participant, WestEd further specified the cost per participant by calculating the cost per participant for each participant service. For example, equation 2 below demonstrates how the costs per participant were calculated for the project-based learning services.

$$\text{[Equation 2] Per participant cost} = (\text{project-based learning cost}) / (\text{Number of participants in project-based learning})$$

Limitations

There are limits to which this cost information can be used to inform the design and implementation of similar initiatives. First, the resources were allocated based on local needs and overlaid with existing staffing/system structures, which will likely be different in other local contexts. Second, this study does not account for in-kind contributions such as staff from IT companies and design companies who volunteered time to facilitate meetings or attend CoLab meetings. These resources added value to the initiative, but are not captured in the cost data.

Funding

Exhibit 16 includes the funding associated with the two categories of costs outlined in the previous section.

- **The WIF funding associated with system-building totaled \$2,060,000, representing 69% of the WIF funding.**
- **The participant services funding was \$940,000, representing 31% of WIF funding.**

Exhibit 16. WIF Grant Funding Allocations for TechSF

WIF Grant Activity	Total Funding	Percent of Total Funding
System Building:	\$2,060,000	69%
Innovation Engine Pilots and Data Lab: Innovation Methodology, Career Navigation, Trail Lab Pilot, Txt2wrk, CoLab, Civic Engagement and Learning Network Events.	\$971,000	32%
Employer Engagement: Development of EcoSystem Map, Employer Profiles, Experiential Learning development, Nerd Underground, and Business Breakfasts	\$337,000	11%
Grant Management and Evaluation	\$752,000	25%
Participant Services	\$940,000	31%
Talent Development: Project-Based Learning	\$615,000	20%
Talent Development: Workshops	\$300,000	10%
Innovation Engine Pilots: The Learning Shelter	\$25,000	1%
Total WIF Funds	\$3,000,000	100%

Cost per Participant

Cost per participant across all participant services was \$783. Cost per participant for each participant service ranged from \$502 (Workshops) to \$5,000 (The Learning Shelter). These costs are not comparable across participant services because services received differed in length of service, ranging from a one-hour workshop to a semester-long class. Exhibit 17 includes the costs per participant across all participant services.

Exhibit 17. Costs per Participant for WIF Funding

Participant Services	Number of Participants*	Cost per participant
All	1201	\$783
<i>Project-Based Learning**</i>	598	\$1,028
<i>Workshops</i>	598	\$502
<i>The Learning Shelter</i>	5	\$5,000

*Number of participants as of March 2015.

**Sixty-eight participants were at CCSF and 530 were at SFSU.

Note: Costs are not comparable across services because the services received are different, ranging from a one hour workshop to a semester long class.

Conclusion

Grant funds were spent in ways that were intended to meet local needs, correspond with leveraged grant funds, overlay onto existing program operations, and respond to the existing policy context; therefore, the costs allocated to support TechSF project activities are not necessarily transferable as estimates for launching similar efforts. In addition, cost estimates are likely underestimated because implementation included in-kind contributions of employees from IT companies and design companies that were not captured in the cost data presented here, but does represent value added to the project.

The costs of the participant services are likely more transferable as estimates for similar types of direct services, but should be considered in tandem with the structure and duration of each individual participant service.

All the costs represent an investment into the local workforce system and further development of participants' human capital. Estimating a monetary return on these investments requires data on the monetary benefits of the investments, which this evaluation was not designed to capture. Future evaluations could build on this cost data and estimate the economic returns to efforts that build on the investments made through this grant.

VIII. Conclusion: Summary of Findings and Lessons Learned

The TechSF Workforce Innovation Partnership was an IT sector strategy designed to meet the needs of San Francisco employers, job seekers, and the public workforce system. The goals were to enhance the workforce system's capacity to design and deliver innovative and responsive workforce services and develop local talent to close the IT skills gap. WestEd's evaluation of TechSF focused on formative studies of system-level interventions (i.e., CoLab, txt2wrk, and Employer Engagement) and an outcome study of a talent development intervention designed to help local job seekers build skills that met local employers' needs. This chapter summarizes the findings across the studies, reviews the lessons learned, and concludes with a discussion of how the findings contribute to the workforce development literature.

Summary of Findings

With the support of a three-year grant from the U.S. Department of Labor, TechSF supported job seekers, employers, higher education institutions, and the workforce development system to test innovative practices in the context of building a sector strategy. Innovative strategies at the system level included convening a diverse group of thinkers to catalyze innovation through brokering partnerships and applying agile software development and prototyping principles to new approaches to helping job seekers prepare for and find work, including developing custom software to improve the workflow of public workforce staff. At the participant services level, TechSF created innovative approaches to helping job seekers adapt to a local industry that relies increasingly on contract-based work, and supported employer involvement in project-based learning at local colleges and universities.

System-Level Interventions

The system-level interventions were focused on developing collaborative relationships among IT stakeholders and implementing workforce service system improvements; as such, they were process-oriented. The following is a summary of key findings from TechSF's system-level interventions.

Through the CoLab, the public workforce system experimented with applying industry approaches (e.g., user-centered design principles and agile software development methods) to improve workforce services.

- The CoLab pilots and civic engagement events were seen as delivering both immediate benefits and laying the groundwork for longer-term change.
 - The CoLab created a collaborative forum focused on the workforce system in which government served as a platform for brokering partnerships and as a civic innovation base looking to make a difference in workforce development issues at the city-wide level.
- The CoLab’s approach included intentionally seeking “disruptions” in the form of new ideas and voices on the nature and future of work; increasing engagement of stakeholders in developing solutions to workforce issues throughout the system; and fostering new perspectives on employment strategies (e.g., technology solutions for job training, search and matching, and job sharing).
 - Civic engagement events and pilots were strategically chosen to test new ideas and “hot topics” and to prioritize sector strategies that could be fundable, replicable, and lead to innovation.

The txt2wrk pilot project team encountered several challenges during the discovery and prototyping phases, adapted their approach in response, and eventually discovered how txt2wrk could fill an unmet need.

- The txt2wrk pilot was not fully implemented as planned or within the timeline of the WIF grant. The rapid prototyping took longer than planned because the discovery phase surfaced inaccurate assumptions about program resources and workflows, and because initially very few job seekers opted to use the service. The team adapted their approach and the number of job seekers opting in to use the service increased.
- While prototyping the new opt-in approach, the project partners discovered that txt2wrk could fill an unmet need: sending general program announcements to a large group of CityBuild Academy alumni, which would be faster than calling them individually.
- Members of the txt2wrk project team suggested that the implementation may have gone more smoothly if the project team were more involved when decisions were being made about the pilot’s focus.

The spectrum of employer engagement opportunities (from low-commitment to higher-commitment opportunities) created by the project were successfully tailored to employers needs, interests, time, and resources.

- Employers attending a low-commitment event (e.g., a TechSF business breakfast) did so because they were interested in networking, learning from peers at other companies, learning more about training offered, and supporting the Bay Area Video Coalition (the event host).
- Employers that offered office space and event staffing for a networking event did so because it contributed to their community service goals, helped with recruiting job candidates, and helped promote their company’s brand name.

- Employers that participated in a semester-long project with a college class did so because it contributed to their organization's community service goals and goals for supporting students and learning.
- Staff believed the employer engagement strategies helped them gain better information about employers' needs and helped to build the reputation of the TechSF sector strategy among employers. All employers interviewed about their experience at an engagement event were satisfied.

Service-Level Interventions

The service-level interventions were focused on designing and implementing skill-building trainings and workshops for job seekers in order to meet local employers' needs for a highly skilled workforce in targeted high-growth IT occupations; as such, they were outcome-oriented. The following is a summary of key findings from TechSF's service-level interventions.

Employers' engagement had a direct benefit on students participating in project-based learning courses. It provided industry-based examples for students to learn from.

- Over 80% of students who participated in project-based learning and completed a course exit survey agreed that participation allowed them to gain skills expected by employers and increased their understanding of working cooperatively in a team.

Job seekers attending career management workshops perceived them as improving their job search skills.

- Over 80% of respondents perceived that participating in the career management workshops improved their ability to communicate during an interview, identify job leads through their professional network, and create a resume/portfolio that effectively communicated their skills.
- The majority (82%) of respondents perceived that attending workshops about freelancing improved their ability to start their own businesses.

Job seekers who enrolled in technical training and attended two to three career management workshops had a higher likelihood of employment than job seekers who enrolled only in technical training and chose not to participate in additional workshops (68% versus 59% employment rate, respectively).

- There was a positive and statistically significant association between the number of career workshops technical training participants attended and their likelihood of finding a new job. The results do not imply causation because they do not control for unmeasured or unknown factors. The results suggest, however, that the career workshops could be helping technical training participants find jobs.

Placements for technical training participants were made at a range of IT companies, including well known technology companies such as Yahoo, Salesforce, eBay, and Adobe Systems.

- Fifty-nine percent of technical training participants who were employed after participating in services were employed in contract positions.

Contribution to Evidence Base

The evaluation of TechSF extends the existing research base on local workforce development services and initiatives, particularly in the following three areas: employer engagement, closing the skills gap, and use of innovation and technology to transform public workforce services.

Employer Engagement

Research has shown that appeals to industry's social responsibility goals are a viable way to attract employer participation in public sector initiatives (Council on Competitiveness, 2008). Employers can be involved in such initiatives in a variety of ways, including helping establish strategic goals, strengthening partnerships, and transforming the service delivery system (Public Policy Associates, 2009). The evaluation of TechSF confirmed these findings, and also found that businesses participate in public sector initiatives for a variety of reasons that corresponded with their interests, needs, and available time and resources. Moreover, the public workforce system can encourage employers to participate by creating a sense of community among employers through offering a range of options and commitment levels for engaging and contributing based on their interests and time.

Closing the IT Skills Gap

Studies have shown that employers value both technical and non-technical skills (Carrese & Jones, 2013). Similarly, employers value tangible work products and portfolios (NOVA Workforce Board, 2011). Findings from this evaluation were consistent with the literature. There was a positive association between technical training participants who attended more career management workshops (e.g., professional networking workshops and portfolio reviews) and higher employment rates. Additionally, a majority of participants enrolled in project-based learning valued the experience because it allowed them to gain the kind of practical skills expected by employers and increased their understanding of working cooperatively in a team.

Use of Innovation and Technology to Transform Public Workforce Services

There is growing evidence that shows how the public sector can adopt technology and software development practices to improve workflows (United States Government

Accountability Office, 2012). Similarly, the U.S. governments' Digital Services playbook outlines key best practices that it has compiled from both private and public sector practices (U.S. Digital Service, n.d.). The evaluation of TechSF documented how a local public workforce system experimented with applying agile software development practices and user-centered design principles to solve workforce challenges and map the future of the local workforce development ecosystem. Creating a platform for government to broker relationships among innovation and industry leaders to support a series of public-private pilot projects and civic engagement events helped to foster a mindset among stakeholders reflecting a more entrepreneurial approach to initiating change in workforce development services, such as hackathons or design sessions to prototype solutions to given workforce challenges.

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Appendix A. Methodology

Workforce Innovation CoLab Formative Study

The Workforce Innovation CoLab (CoLab) was a forum for developing new ideas and tools to improve San Francisco's capacity for connecting local job seekers with jobs, strengthening collaborations with employers, and improving the workforce development system. The CoLab's mission was to shape the future of workforce development in San Francisco by designing, developing, and deploying innovative workforce tools and services. It was structured to be an interdisciplinary body formed around a core group of members that included individuals from various areas, including design, philanthropy, workforce technology, and government.

Purpose of the Study

The formative evaluation examined the development and operation of the CoLab as it conducted new approaches to achieving change in the workforce development system. The specific research questions to be answered by this study were:

- 1) How does drawing on a diverse mix of thinkers (employers, technology providers, educators, researchers, designers, and government agencies) help shape workforce strategies in San Francisco?
 - a. What strategies and methods were helpful in eliciting input from CoLab members and stakeholders?
 - b. What challenges and opportunities emerged?
 - c. What processes ensured that CoLab input and collaboration were used in planning and implementing solutions?
 - d. What were the criteria for choosing pilot projects and how did use of data, research, and best practices inform the planning and decision making process?
 - e. How did CoLab members and workforce systems stakeholders perceive the process?
 - f. What feedback mechanisms supported the continuous improvement of future course developments?
- 2) How does the application of tools and services developed by a group of diverse thinkers help to transform workforce services?
 - a. How were areas for improvement identified?
 - b. What tools, services, and/or strategies were developed?
 - c. How were the tools, services, and/or strategies implemented?
 - d. How did practices, programs, policy, or other elements of the workforce system change as a result?
 - e. How did CoLab members and workforce systems stakeholders perceive the process?
 - f. What feedback mechanisms supported continuous improvement of the tools, services, and/or strategies?

Participants, Population, and Units of Analysis

Participants included those who participated in the CoLab and led pilot projects. Interviews with CoLab members were co-conducted with a staff member from the Mayor's Office of Civic Innovation (MOCI), to afford the project team real-time feedback and an opportunity to make rapid mid-course corrections in strategy. These interviews explored members' perceptions about participation in the CoLab, the workforce services system, and the processes of achieving change in workforce services.

A second group of participants included individuals who were members of the TechSF project team and managed the WIF grant and interventions that were tested and/or taken to scale during the term of the grant. The evaluation gathered feedback from key staff at OEWD and MOCI with a focus on how the innovative practices affected service delivery.

A third group of participants included individuals who attended a civic engagement or design event developed under the auspices of the CoLab. Feedback from this group was obtained through surveys, to learn about their experience and satisfaction with services.

Data Sources and Collection

The formative evaluation of the CoLab relied on qualitative data collection strategies, including document review, observation, interviews, and surveys.

Observation

To document proceedings, WestEd attended and observed CoLab meetings, including group meetings, design and rapid prototyping sessions, a meeting of pilot project leaders, and civic engagement events. WestEd documented information related to the research questions, with particular attention to process: how ideas were generated and brought forward; the dynamics of discussion and decision-making; and the timing, pacing, and manner in which change was achieved.

Surveys and Feedback Forms

WestEd administered a feedback survey at the conclusion of two civic engagement events. The surveys included questions regarding the participants' experiences in the event, perceptions of benefits from participation, and areas for potential improvement.

Interviews

WestEd invited 10 key project leaders from OEWD (n=3), MOCI (n=3), and four members of the CoLab to be interviewed. The four CoLab members were selected from the 12 members based on their role, interest, and availability. Nine of the ten individuals invited to participate in interviews accepted and were interviewed.

Interviews of the four CoLab members were conducted between June and November 2014 in collaboration with a MOCI staff member. Staff at OEWD and MOCI were interviewed

in a series of three interviews (occurring during the third quarter of 2014, first quarter of 2015, and May 2015) to learn how change in workforce services unfolded.

The interviews were conducted in-person and/or by telephone, and lasted approximately 60 - 90 minutes. The interviews were scheduled to coincide with the completion of major project milestones or shifts in strategy, and were led by WestEd staff with experience conducting one-on-one interviews. The interviews explored the research questions, with a particular focus on unanticipated successes or challenges, and strategies for improving the process. The interviews were semi-structured to allow for follow-up of emerging themes within the interview context.

Document Review

The document review included documents developed to support meetings of the CoLab; rapid prototyping cycles; implementation of pilots; and project planning meetings between OEWD, MOCI, and WestEd. Documents included handouts and materials from workgroup meetings (including meeting agendas, meeting minutes, sign-in sheets, PowerPoint presentations, and articles), vendor contracts, and the work plans and other materials created to support implementation of pilot projects.

Analysis

The analysis of these data used quantitative and qualitative approaches, as appropriate. Data sources were analyzed separately and then synthesized to provide a comprehensive picture of the strategies and processes conducted under the CoLab. Analyses generated by the formative evaluation were used to provide context for the outcomes studies, when appropriate.

Surveys and Feedback Forms

Survey and/or feedback form results were summarized by question themes. Quantitative survey results were analyzed descriptively and presented in tandem with summaries of qualitative themes identified from the analysis of open-ended questions and interview data. Survey results were summarized and reported back to project staff to help assess whether the events were meeting their goals and to communicate suggestions offered.

Interviews and Observations

WestEd coded and analyzed notes from the semi-structured interviews, and employed an iterative qualitative analysis to provide a comprehensive description of the innovation process and the participants' perceptions on effective practices. A similar approach was used to analyze observation notes from CoLab meetings, events, and planning meetings. The research team sought to compare and contrast responses in order to identify themes and inconsistencies, triangulate results, and strengthen conclusions.

Document Review

The document review provided context on specific intervention activities. The document review included identifying the number and role of participants in each meeting, their engagement across activities, and the scope of participation by members of the CoLab, as well as evidence of their contributions to civic engagement events or other meetings, such as with the pilot leaders. Examining records of meeting content, decisions, and actions helped identify how innovation processes unfolded. A process similar to that of analyzing the interview data was used to analyze the documents.

txt2wrk Formative Study

The formative evaluation of txt2wrk was intended to help OEWD program managers learn from the txt2wrk software implementation experience and, as a result, learn how to improve their approach to planning and implementation of similar projects. The research questions that guided this formative study were:

- 1) How was txt2wrk implemented?
 - a. Who were critical project stakeholders and what were their roles in implementing the intervention?
 - b. What strategies, processes, and practices were planned? Carried out?
- 2) What progress was made on intervention goals and milestones?
 - a. Was the intervention implemented as planned?
 - b. What facilitated or accelerated the implementation of the project plan?
 - c. What barriers or challenges limited progress or required strategies to be revised?
- 3) What lessons will inform future work?
 - a. What strategies, processes or practices produced intended results?
 - b. What might have been done differently, by whom or when, that could have helped produce intended results?
 - c. Can these lessons be applied to this intervention or in other contexts?

Participants, Population, and Units of Analysis

WestEd answered these research questions by gathering information from three groups of participants. The first group was the CityBuild program staff, for whom the application was being designed. WestEd participated in the discovery activities with liaisons, conducted a baseline observation of their workflow (via job shadowing), and interviewed them to learn about the implementation experience and their perceptions of the txt2wrk application.

A second group of participants was the txt2wrk application developers. WestEd interviewed the developers about their perceptions of the implementation, integrating txt2wrk into the liaison workflow processes, application development strategies, and adjustments to the strategies. WestEd also obtained feedback from the developers throughout the project, as part of WestEd's participation and observation of selected planning meetings.

The third group of participants was the OEWD project team. WestEd obtained regular feedback from the OEWD project director to track the implementation process and offer feedback and technical assistance, where appropriate. WestEd also interviewed the OEWD project manager to learn about his/her perceptions of the implementation, integrating txt2wrk into the liaison workflow processes, and adjustments to implementation strategies.

Data Sources and Collection

Interviews

WestEd interviewed key staff from OEWD, CityBuild, and the txt2wrk developers. The interviews lasted approximately 60 minutes. The interviews were led by a WestEd staff member with experience conducting one-on-one interviews. The interviews included questions regarding successes and challenges with implementation, perceived benefits, and lessons learned. The interviews were semi-structured to allow for follow-up of emerging themes within the interview context.

The response rate for the CityBuild interviews was 100% (4 of 4). All liaisons and the manager involved in the pilot were invited to an interview and all agreed to participate in the interview. The response rate for the txt2wrk developer interview was 100% (3 of 3). The three developers were invited to participate in a group interview and all participated. WestEd also conducted a capstone interview with the OEWD project manager.

Document Review

The document review included documents developed to design and support implementation of the application. This included workflow mappings, screen shots, database schematics, usage data, opt-in trends, and meeting notes.

Observation

WestEd observed program activities, including the workflow before the txt2wrk application was adopted. WestEd also attended any relevant planning meetings to address themes raised in the research questions. Specific attention was paid to the implementation process, successes, and strategies for addressing challenges.

Analysis

The analysis used quantitative and qualitative approaches, as appropriate. Data resources were analyzed separately and then synthesized to provide a comprehensive picture of how implementation of txt2wrk evolved. Analyses generated by the formative evaluation were used to provide feedback to the program managers to help guide the implementation process.

Interviews and Observation

WestEd coded and analyzed observation notes and transcripts from the semi-structured interviews, and employed an iterative qualitative analysis to provide a comprehensive description of the implementation process and identify lessons learned. The research team sought to compare and contrast responses in order to identify themes and inconsistencies, triangulate results, and strengthen conclusions.

Document Review

The document review provided context for the implementation and helped track adjustments that occurred. Examining records of meeting content, decisions, and actions helped identify how the implementation processes unfolded. A process similar to that of analyzing the interview data was used to analyze the documents.

Employer Engagement Formative Study

This formative evaluation examined the development of employer engagement strategies, with a particular emphasis on tracking strategies that engaged employers in innovative project strategies to improve workforce services and experiential learning opportunities. The specific research questions to be answered were:

- 1) What are the advantages and challenges of the strategies used to engage IT employer participation in workforce services and experiential learning opportunities?
 - a. What roles did key stakeholders play in engaging employers?
 - b. Were the incentives and strategies for engaging the IT employers adequate?
 - c. How did employers and workforce systems stakeholders perceive the process of engaging employers differently?
 - d. How did services change as a result of engaging employers?
- 2) What practices ensure that education, training, and employment assistance programs align with and cultivate skills in demand?
 - a. How was input of key stakeholders used to develop programs?
 - b. What challenges and opportunities emerged in designing and implementing the programs?
 - c. What worked well and what suggestions were offered to improve the courses?
 - d. How do employers, instructors, stakeholders, and students perceive the benefits and value of the programs?

Participants, Population, and Units of Analysis

Participants included employers who were targeted for engagement in the sector strategy. WestEd invited employers involved in three different types of engagement activities, ranging from lower- to higher-commitment activities. Through the evaluation, these employers were asked about the reasons they participated, their perceptions about the workforce services system, and their satisfaction with workforce system services.

A second group of participants included individuals who deliver workforce services and interact with employers. The evaluation gathered feedback from the project team, workforce services staff, educators, and community-based service providers through interviews to learn how new strategies to engage employers are developed and implemented, with a particular focus on user-centered approaches.

A third group of participants included individuals participating in project-based learning. All students participating in project based learning opportunities were invited to participate in a survey at the end of their participation in the project-based learning experience. A fourth group of participants included faculty participating in project-based learning. Faculty members were interviewed to learn about program implementation, perceived benefits, and challenges.

Data Sources and Collection

The formative evaluation relied on qualitative data collection strategies, including interviews, surveys, observations, and document review.

Interviews

WestEd interviewed employers, program staff from OEWD and the Bay Area Video Coalition (BAVC), and faculty involved in project-based learning. The employer interviews lasted approximately 30 minutes. The interviews with staff and faculty lasted approximately 60 minutes. The interviews were led by a WestEd staff member with experience conducting one-on-one interviews. The interviews included questions regarding successes and challenges with implementation, perceived benefits, and lessons learned. The interviews were semi-structured to allow for follow-up of emerging themes within the interview context.

The response rate to the employer interviews was 71% (12 of 17). As outlined in Exhibit 1, the response rate varied by the engagement event. All invited employer engagement program staff (n=5) were interviewed. Two were OEWD staff members (one of whom was the project director), and three were staff at BAVC primarily responsible for employer engagement.

A total of seven faculty members involved in the planning or delivery of project-based learning at the City College of San Francisco or San Francisco State University were invited

to participate in an interview. 71% (5 of 7) participated and two of the five choose to complete their interview guide in writing instead of participating in a discussion.

Exhibit A1. Interview Response Rates for Employers that Participated in Engagement Events Employer Interviews

Type of Employer Engagement Event	Initiative	Response Rate	Responses	Invited to be Interviewed	Method for Selecting Invitees
<u>Low commitment:</u> <i>Attend a breakfast, which included time for networking and informal focus groups conducted by program staff</i>	Business Breakfast	100%	4	4	One randomly selected and three selected because new invitees and from different industries
<u>Moderate commitment:</u> <i>Offered event space at their facility and helped with planning and staffing the event</i>	Nerd Underground	63%	5	8	All employers that hosted an event between July 2012 and October 2014
<u>High commitment:</u> <i>Met with students over the course of semester to provide feedback on the employer-suggested project</i>	Project-based learning	60%	3	5	All employers that participated in Spring 2014 Website Design Practicum
Total		71%	12	17	

Surveys

WestEd invited students in project-based learning classes supported by TechSF to complete surveys that included open- and closed-ended questions regarding the participants' experiences with project-based learning, perceptions of benefits from participation, and areas for potential improvement.¹⁴ The response rate for the surveys was 59% (182 of 306). Approximately 62% percent of the surveys were distributed in class and the remaining 38% were emailed to students because of delays related to the Institutional Review Board review or because the scheduled in-class distribution was cancelled.

¹⁴ Since the project based learning component was tailored to each class, the survey questions related to project-based learning also varied accordingly, but the general intent of the questions remained the same.

Observations

WestEd observed program activities, including observing planning meetings, attending events, and helping to conduct focus groups at business breakfasts. WestEd also attended relevant planning meetings to address themes raised in the research questions. Specific attention was paid to the implementation process, successes, and strategies for addressing challenges.

Document Review

The document review included documents developed to market TechSF to employers, meeting agendas, and meeting notes. WestEd also reviewed the syllabi and planning documents associated with the classes involved in project based learning.

Analysis

The analysis used quantitative and qualitative approaches, as appropriate. Data sources were analyzed separately and then synthesized to provide a comprehensive picture of how implementation of employer engagement evolved. Analyses generated by the formative evaluation were used to provide feedback to the program managers to help guide the implementation process.

Interviews and Observation

WestEd coded and analyzed observation notes and transcripts from the semi-structured interviews, and employed an iterative qualitative analysis to provide a comprehensive description of the implementation process and to identify lessons learned. A similar approach was used to analyze notes from engagement events and planning meetings. The research team sought to compare and contrast responses in order to identify themes and inconsistencies, triangulate results, and strengthen conclusions.

Surveys

Survey results were summarized by question themes. Quantitative results were examined descriptively using frequencies, standard deviations, and ranges. Open-ended questions were coded into different themes that emerged from reviewing commonalities across all responses. These themes were compared and contrasted to results from the interview findings to identify patterns and inconsistencies.

Document Review

The document review provided context for the implementation and helped track adjustments that occurred. Examining records of meeting contents, decisions, and actions helped identify how the implementation processes unfolded. A process similar to that of analyzing the interview data was used to analyze the documents.

Talent Development Intervention Outcome Study

WestEd conducted an outcome study to learn whether attending more career management workshops, in combination with technical training, was associated with higher employment rates and wages. The research questions guiding the study were:

- 1) Is there a positive relationship between attending more TechSF workshops and being employed after receiving services?
- 2) Among those individuals who are employed after receiving TechSF services, is there a positive relationship between attending more workshops and earning higher wages?
- 3) What were participants' satisfaction levels with the workshops and how did they perceive it influenced their job search?

Participants, Population, and Units of Analysis

One group of participants included unemployed, displaced workers, and underemployed workers in San Francisco who participated in TechSF's IT education, training, and employment services. Participants were recruited to participate through the America's Job Center system, general social media outreach by the sector coordinator, and other sources. Participants accessed these services through the Bay Area Video Coalition (BAVC), the TechSF sector coordinator. Administrative and outcome data for this group was obtained from BAVC. Participants were also asked to participate in surveys to assess their perceptions of and satisfaction with TechSF programs and services.

Outcome Study Sample

The outcome study sample consisted of training participants who met each of the following criteria: (1) attended a career readiness workshop and received occupational skills training coordinated through BAVC between July 2012 and December 2014; (2) were attempting to secure employment at any time during these 16 months and (3) individuals for which a complete set of data was available. For instance, if an individual was missing demographic data, he/she was excluded from the analysis. For the second research question that uses hourly wages as the outcome variable, we further restricted the sample to those employed individuals who reported wages.

BAVC collected data about placement in new jobs at times ranging from the time training starts to up to 12 months after exit (depending on the funding stream). Data on the start date and end date of training were not captured systematically for this study's sample, therefore a more precise range cannot be estimated.

The second group that participated in the evaluation included education, training, and employment services providers. They were staff at OEWD or BAVC that planned and/or delivered education and training services to TechSF participants. They were recruited to participate in meeting observations and interviews.

When relevant data were obtained, this evaluation also included feedback from IT industry stakeholders collected through the employer engagement evaluation.

Data Sources and Collection

Administrative Data

WestEd obtained data to support the outcome model from BAVC's management information system (MIS). Workshop attendance data was obtained from sign-in sheets. Information about participant's training enrollment and demographics (i.e., age, educational attainment, ethnicity/race, and gender) was obtained from MIS system. Participants entered their basic information into an online application during the enrollment process. Data on employment status and wages in participants' new jobs was obtained from BAVC and were based on data structures already in place to report outcomes to OEWD.

Qualitative data from narrative progress reports, surveys, and evaluator interviews with program staff provided insights about implementation processes and supported the outcome evaluation.

Surveys

WestEd administered surveys after BAVC workshops to assess satisfaction level and perceived benefits from participating in the workshops. Surveys included questions regarding the participants' experiences in programs/services, perceptions of effectiveness of the programs/services, and areas for potential improvement. The surveys were distributed at workshops between May 2014 and January 2015, and the overall response rate was 85% (413 of 485).

Interviews

WestEd interviewed program staff involved in managing and designing the workshops and trainings offered at BAVC. The interviews included questions regarding successes and challenges with implementation, perceived benefits, and lessons learned.

WestEd also incorporated findings, where appropriate, from interviews with IT employers conducted as part of the formative evaluation of employer engagement (see the methodology section for employer engagement for more details).

All interviews were led by a WestEd staff member with experience conducting one-on-one interviews. The interviews were semi-structured to allow for follow-up of emerging themes within the interview context.

Observations

WestEd attended meetings of education and training providers to document and explore how the program was implemented, effective practices, perceptions of the program's

benefits for participants, barriers to successful completion, and possible solutions. Agendas were structured to allow time for discussion of specific evaluation questions.

Analysis

The employment outcome model used a logistic regression to examine the relationship between employment status and number of career management workshops attended. A logistic regression estimates the likelihood of an event in terms of an odds ratio. For example, if the probability of switching jobs is $P=.80$, then the odds ratio would be $P/(1-P)$ or empirically the estimated odds are 4 to 1 that a participant will obtain a new job. The below equation depicts the logistic regression for employment status.

$$\text{logit}(\pi_i) = a + B_1' \text{Demographics}_i + B_2 * \text{WorkshopAttend}_i$$

where π_i is the odds of a training participant obtaining a new job, as a function of number of workshops attended. a is the constant. *Demographics* was a vector of individual characteristics (i.e., age, gender, race/ethnicity, and prior education). The variable that measure intensity of program involvement was *WorkshopAttend*. This is a continuous variables which indicate the number of career workshops attended.

The estimated coefficient on *WorkshopAttend* provided an estimate of the strength and significance of program participation's correlation with employment status. These parameters were used to calculate the odds ratio on employment status. An analogous wage regression for the employed was also estimated. The dependent variable was hourly wage in the new job, and the independent variables were the same as the ones in the logit regression above.

Surveys and Interviews

Data from surveys and interviews were used to add depth to the regression results to understand the perceived benefits of workshop and training services. These data resources were analyzed separately and then synthesized to provide an understanding of the planning and implementation of job seeker services.

WestEd coded and analyzed transcripts from the semi-structured interviews, and employed an iterative qualitative analysis. Survey results were summarized by question themes. Quantitative results were examined descriptively using frequencies. Open-ended questions were reviewed for commonalities and suggestions for improvement. These themes were compared and contrasted to results from the interview findings to identify patterns and inconsistencies.

Document Review

The document review provided context for the implementation and helped track adjustments that occurred. Examining records of meeting content, decisions, and actions

helped identify how the implementation processes unfolded. A process similar to that of analyzing the interview data was used to analyze the documents.

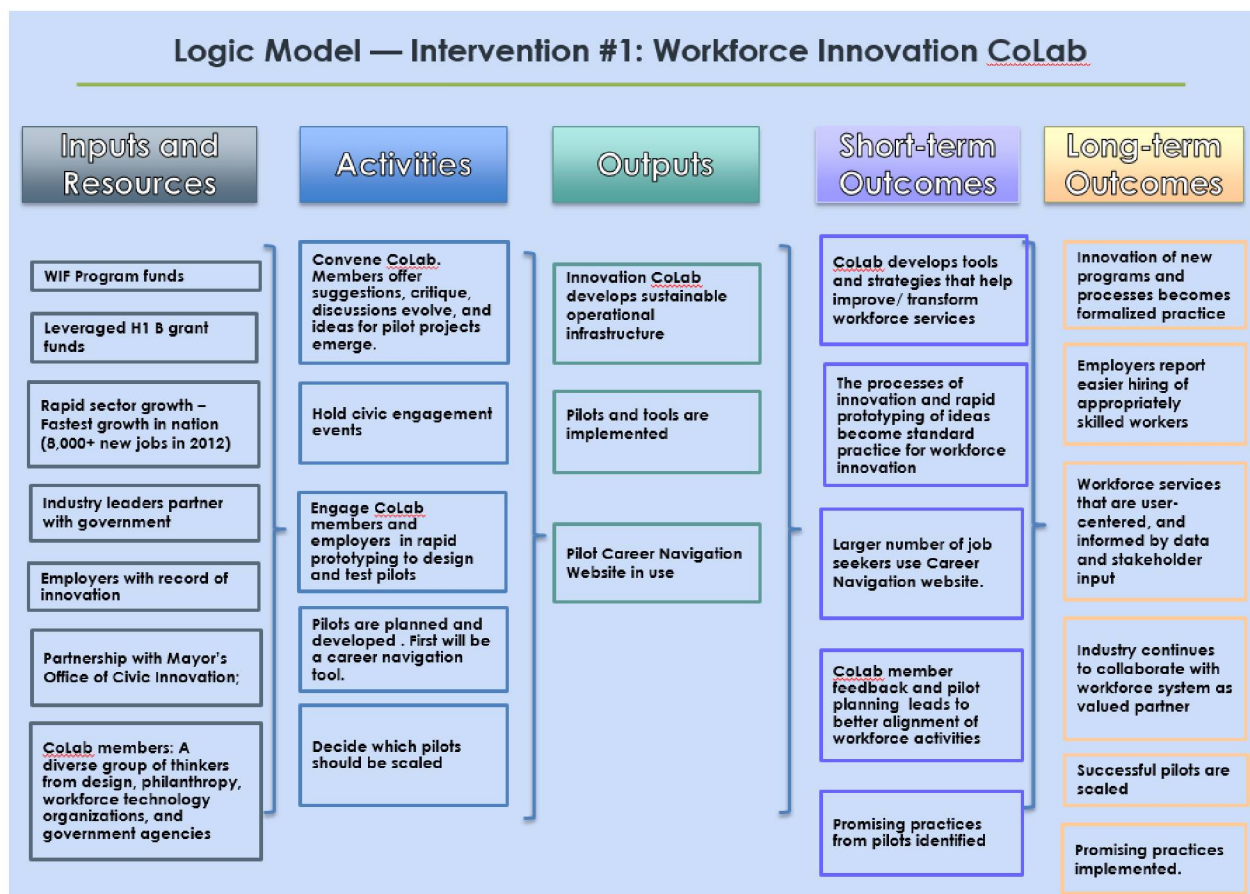
Threats to Validity

The two main threats to validity of the outcome model were selection bias and non-response bias. Selection bias occurs because in the absence of random assignment to different levels of program participation, there may be systematic (and un-measurable) reasons why some participants choose to spend more time in the program than others. For example, students who choose to attend fewer career management workshops may do so because they are working. If it happens systematically, the results would show negative correlation between attendance and higher employment levels.

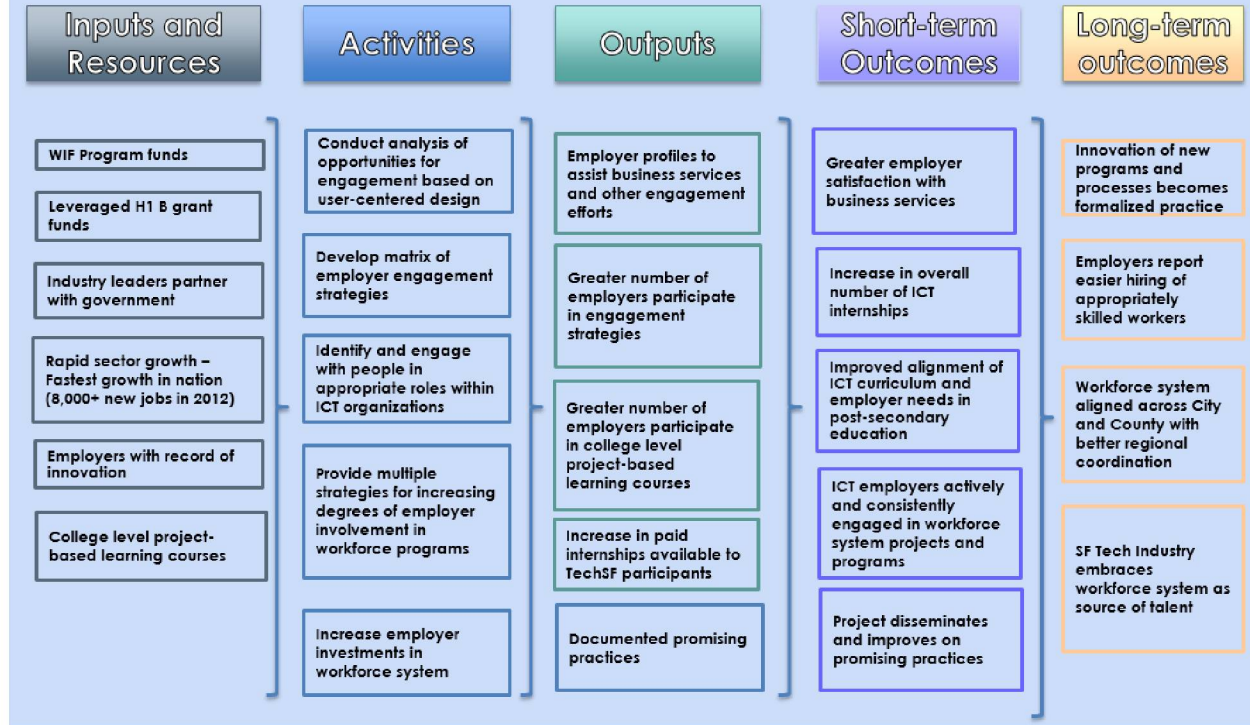
Non-response bias was another concern. The concern is that there is a systematic difference between participants who respond to surveys and follow-up questions about employment status and those that do not. For example, if those who find a job are less likely to complete a post-program survey, then non-response bias would lead to an under-reported employment rate.

Appendix B. Logic Models for TechSF Interventions

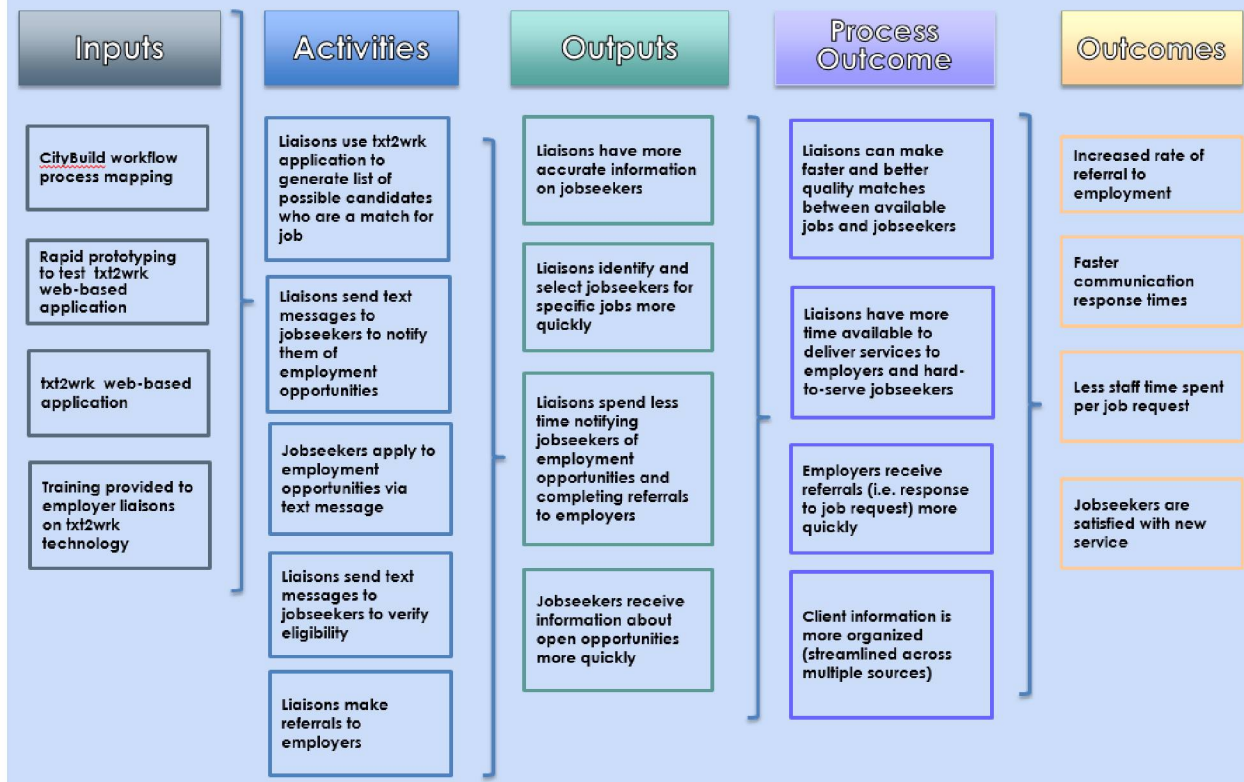
This appendix presents the logic models for the TechSF-WIP project and each intervention studied in this evaluation. These logic models were developed by the evaluation team, in collaboration with project staff, to guide the evaluation design, are part of the Evaluation Design Report approved by the WIF National Evaluation Coordinator.



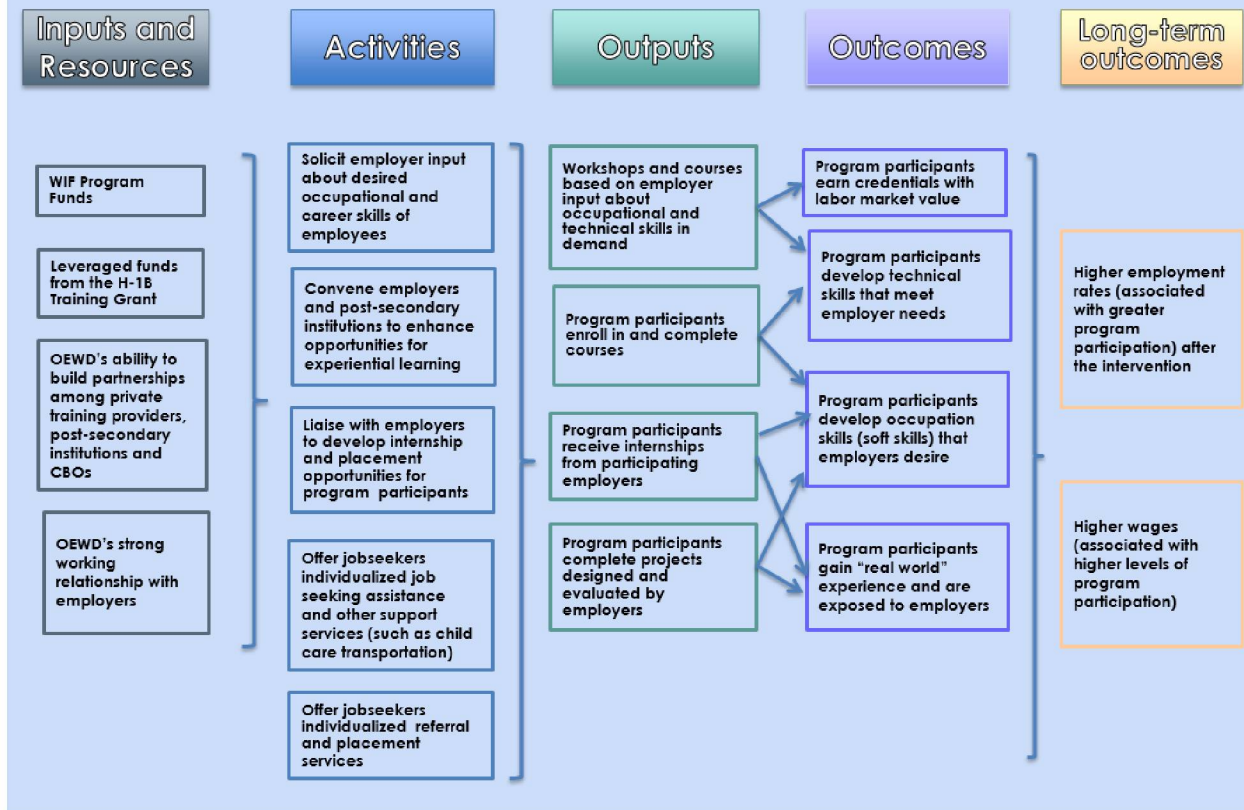
Logic Model — Intervention #2: Employer Engagement



Logic Model — txt2wrk



Logic Model — Tech SF WIF Program: Talent Development Intervention



Appendix C. Project-Based Learning Survey Results

Students participating in project-based learning opportunities were invited to participate in a survey at the end of their class. The response rate for the surveys was 59% (182 of 306).

Exhibit C1. Project-Based Learning Survey Results

	Participation in project-based learning provided me with experience in class that was based on examples from industry.	Participation in project-based learning increased my understanding of working cooperatively in a team.*	Participation in project-based learning increased my understanding of the type of work expected by employers.	Participation in project-based learning increased my understanding of the quality of work expected by employers.	Participation in project-based learning allowed me to gain skills expected by employers.	Participation in project-based learning increased my ability to find a job.
Number of responses	182	125	182	182	182	182
<i>Strongly Agree</i>	44.5%	41%	31.3%	32.4%	43.4%	30.2%
<i>Agree</i>	41.2%	44%	43.4%	38.5%	38.5%	28.6%
<i>Neutral</i>	9.3%	8%	17.6%	22.0%	11.0%	29.1%
<i>Disagree</i>	3.8%	6%	5.5%	4.9%	4.9%	6.0%
<i>Strongly Disagree</i>	0.5%	1%	1.6%	1.6%	0.5%	2.2%
<i>No response</i>	0.5%	0%	0.5%	0.5%	1.6%	3.8%

*One of the project-based learning classes did not include a team project component and in another class the team component was optional.

Appendix D. Talent Development Intervention: Additional Results

This appendix provides additional findings from the Talent Development Intervention (described in VI. Outcome Study: Talent Development Intervention chapter). It provides the demographic profile of the participants that were included in the outcome model. It also presents more detailed survey results for participants attending the career workshops. Finally, it presents the detailed regression estimates of the outcome model.

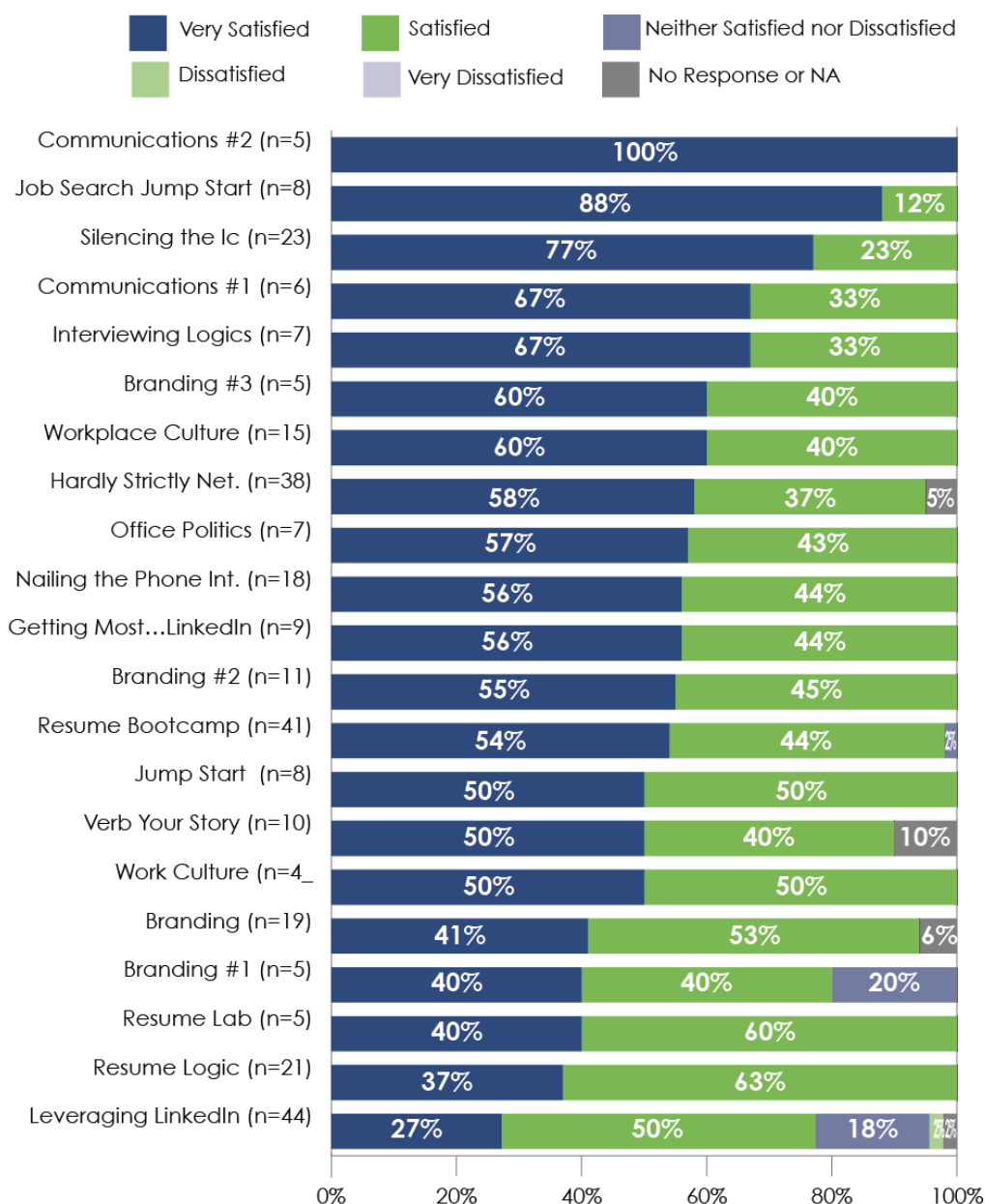
Exhibit D1. Participant Demographic Profile

Participant Characteristic	Number of Participants	Percentage of Participants
<i>Asian</i>	42	28%
<i>Black or African American</i>	9	6%
<i>Hispanic/Latino</i>	16	11%
<i>White</i>	65	44%
<i>More than one race</i>	17	11%
	149	100%
<i>Age 20-24</i>	19	13%
<i>Age 25-34</i>	41	28%
<i>Age 35-44</i>	32	21%
<i>Age 45-54</i>	37	25%
<i>Age 55-65</i>	19	13%
<i>Age 65+</i>	1	1%
	149	100%
<i>High school degree or less</i>	11	7%
<i>Some college</i>	45	30%
<i>Community college degree</i>	5	3%
<i>College degree</i>	70	47%
<i>Graduate degree or higher</i>	18	12%
	149	100%
<i>Male</i>	86	58%
<i>Female</i>	62	42%
<i>Transgender</i>	1	1%
	149	100%

Workshop Participant Satisfaction Survey

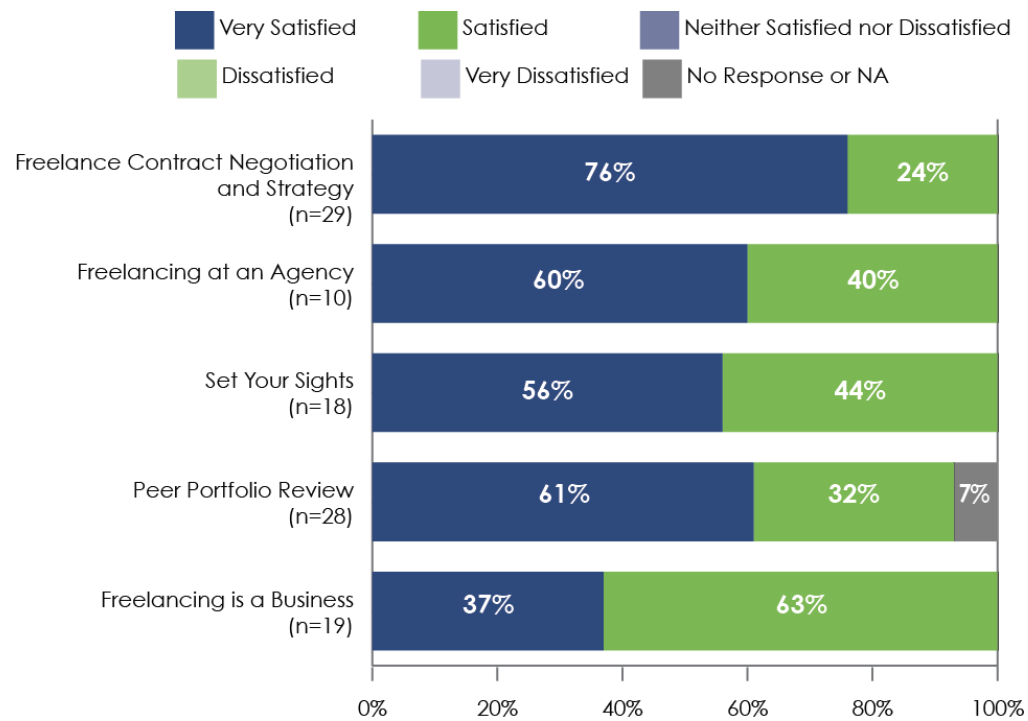
At the end of each career management workshop, participants were invited to complete a survey. The response rate for the surveys, distributed at workshops between May 2014 and January 2015 was 85%. Exhibits D2 and D3 show the satisfaction levels for the various workshops.

Exhibit D2. Participant Responses, by Workshop, to the Question: How Satisfied Were You with the Workshop?



Source: Bay Area Video Coalition workshop participant surveys, 2014–2015.

Exhibit D3. Participant Responses, by Workshop, to the Question: How Satisfied Were You with the Workshop? (Freelancing and Peer Portfolio Review Workshops)



Source: Bay Area Video Coalition workshop participant surveys, 2014–2015.

Logistic Regression Results

Exhibits D4 and D5 provide the full logistic regression results for the models that measures the association between workshop attendance levels and employment in a new job.

Exhibit D4. Logistic Regression Results: Model 1

Dependent variable: Employed in new job during or after training

Independent Variable	Coefficient	p value	Point Estimate
<i>Intercept</i>	0.3246	0.1011	
<i>Number of workshops attended</i>	0.2436	0.11	1.276
<i>Sample size</i>	149		
<i>R-squared</i>	0.0219		
<i>Max Square - rescaled R-square</i>	0.0299		
<i>Hosmer and Lemeshow Goodness-of-Fit Test</i>	Pr > ChiSq	0.8029	

Exhibit D5. Logistic Regression Results: Model 2

Dependent variable: Employed in new job during or after training

Independent Variable	Coefficient	p value	Point Estimate
<i>Intercept</i>	-0.054	0.9524	
<i>Number of workshops attended*</i>	0.2707	0.0853	1.311
<i>Female</i>	-0.3754	0.307	0.687
<i>Age</i>	0.00889	0.5697	1.009
<i>Hispanic</i>	0.4389	0.453	1.551
<i>Asian</i>	0.1728	0.6687	1.189
<i>Black</i>	0.7176	0.3593	2.049
<i>Some college</i>	-0.1773	0.8082	0.838
<i>College degree or higher</i>	0.0778	0.9156	1.081
<i>Sample size</i>	149		
<i>R-squared</i>	0.0481		
<i>Max Square - rescaled R-square</i>	0.0655		
<i>Hosmer and Lemeshow Goodness-of-Fit Test</i>	Pr > ChiSq	0.17	

*statistically significant at p-value < .10

Appendix E. Portfolio of Workforce Innovation CoLab Pilots

During the course of the CoLab's implementation, seven pilots were prototyped during two phases of the CoLab's evolution. The pilots included LearnUp, GoBe.Me, Platform to Employment® (P2E), txt2wrk, Learning Shelter, One Degree, and TRAIL/JobScout. The original conception for testing pilots was that MOCI and OEWD would present them to the CoLab during a "thinking" session during which the CoLab would then strategize ways to further develop and test the pilots, to determine whether any could be taken to scale. Given the CoLab's fluid nature, MOCI and OEWD pivoted from teeing up pain points to taking a more active role in choosing pilots, incorporating the CoLab members' feedback, and trying to match pilot needs with CoLab members' expertise and experience.

Below, we describe the CoLab pilots (LearnUp, GoBe.Me, P2E, txt2wrk, Learning Shelter, One Degree, and TRAIL/JobScout) and describe the prototyping activities that occurred with these projects.

Phase 1 Pilots (Year 2)

LearnUp

LearnUp is a job training and placement platform for entry-level jobs. OEWD and MOCI began demo presentations of the LearnUp pilot in January 2014. LearnUp's mission is to help job seekers learn the skills they need to get hired. It does this by collaborating with employers to pre-train and hire future employees. The platform allows employers to articulate what training and skills are needed for specific positions. Users who complete the training can be reached by hiring managers concerning open positions. At the time of the pilot, LearnUp focused on the retail sector.

Between January 2014 and September 2014 pilot activities with LearnUp concentrated on direct communication and getting feedback through sessions with stakeholders, in-depth demonstrations with youth provider program managers, and meetings with other workforce providers such as One Stops. Two principle meetings on May 14, 2014 and February 12, 2014 brought WorkLink providers together, and by June 11, 2014, fourteen organizations were using LearnUp with 27 individual counselors on board.

Feedback from these sessions was taken back to the LearnUp team to better understand the "product roadmap" and to expand beyond retail, to comprehend user behaviors and performance on the platform, and to prepare to scale the product for job seeker registration and training in time for the busy holiday season within the retail sector. By

December 2014, stakeholders were monitoring the pilot's success rate with the first cohort. The process has also informed content for LearnUp modules that were to be tested and launched publically around May 2015.

GoBe.Me

Initially, GoBe.Me was envisioned as a career navigation tool to help dislocated workers find new jobs. It focused on making the employment processes engaging and personalized, and on including components to support job seeker training, financial services, and job placement. It also endeavored to employ psychological instruments, predictive analytics, and other data—working along with the TechSF initiative to create a career navigation tool for the local San Francisco area.

This career navigation tool would include measures for job seeker assessment, referral, and tracking. OEWD and ONC Holdings, Inc. agreed to work together for early customer feedback and development around the product with plans to finalize and review study findings with project partners around January and February 2014.

Partners with the project included Jewish Vocational Services and Goodwill. The tool was to be developed using User Centered Design, and the discovery phase was informed by gathering feedback from 10 participants and their use of the system. Iterative feedback on the pilot started in December 2013 and GoBe.Me closed in March 2014 because of financial reasons. Consequently the pilot never launched.

P2E

The Platform to Employment® (P2E) program¹⁵ was implemented nationally in eight cities, and highlighted under President Obama's Opportunity for All Campaign (White House Press Office, 2014), P2E's aim is to arm the long-term unemployed with the skills and support they need to obtain work. P2E in San Francisco was a five-week program for the long-term unemployed that provided a combination of job search training, financial literacy training, options for mental health counseling sessions, and the offer of a wage subsidy. P2E in San Francisco launched in February 2014 with Jewish Vocational Services as the primary provider. The Family Services Agency of San Francisco provided mental health counseling sessions and the Consumer Credit Counseling Services of San Francisco provided financial literacy training. Four and a half months after the program ended, approximately 75% of participants had secured employment.

¹⁵WestEd conducted a separate formative evaluation of this pilot project, which was a local implementation of a program model being tested in multiple sites across the country. The evaluation report is attached as an addendum to this report.

txt2wrk

Txt2wrk was a web-based application intended to streamline existing data streams and improve communications between city staff and job seekers in the construction industry.

Partners included OEWD's Strategic Initiatives Unit, CityBuild, and the txt2wrk developers. One of the developers was also a member of the CoLab. Testing for the pilot was originally planned in August 2014, with the application's launch planned for September 2014. Txt2wrk was not fully implemented as planned, and the timeline was extended. At the time of this report, the application was being tested by developers and the CityBuild manager, and a goal to increase the number of job seekers opting in to receive text messages had been set.

Learning Shelter

The Learning Shelter encompasses a 90-day program that provides room, board, and modern technology training for displaced individuals, while supporting emotional and economic stability. As part of the modern-day maker movement, the program includes training in the areas of 2D and 3D design and printing, and laser cutting.

The program partners with OEWD and MOCI, and is fiscally sponsored by the Institute for the Future. San Francisco's goals were to prototype integrating the program, and its innovation within the maker economy, into the workforce system. Launched in 2014, participants built both technology and soft work skills, with continued assessments, counseling, and support. Students built Learning Shelter products for a local company and presented them to other groups during the program. Current plans have been to continue partnership with the Institute for the Future and the San Francisco library system in order to find a space for the pilot that would best serve the homeless population. The program's founder, Marc Roth, was highlighted during the White House's first Maker Faire in June 2014.

One Degree

One Degree is like a "Yelp for nonprofits." It is a website that provides information and user ratings about community programs for low-income families. Community programs include employment information agencies, after school programs, food banks, housing agencies, and more. While the target population of One Degree is primarily low-income communities, it is accessible to anyone and partners include all of San Francisco's workforce development neighborhood access points.

Launched in 2011, the pilot was introduced to community based organizations during an April 2014 meeting, and presented to OEWD providers with a request for an introduction to other city departments in November. During the pilot cohort meeting in November 2014, a representative of One Degree outlined outreach as one of the program's main needs. Concerning the CoLab, requests for outreach efforts could be through networking

and resources such as with media, formal partnerships with the mayor's office, or connections to agencies.

Plans for matching One Degree's needs with CoLab members' expertise were in process toward the end of the grant. In May 2015, matching had not yet happened because One Degree's issues and needs kept changing, making it hard to pinpoint an exact target issue to present to CoLab members.

Phase 2 Pilots (Year 3)

TRAIL/JobScout

OEWD partnered with TRAIL in July 2014 in order to build a custom version of JobScout (TRAIL Entrepreneurship Platforms). The free, accelerated online learning platform concentrates on basic internet skills to build job seekers' skills with digital literacy and job searching. It includes introductory lessons on entrepreneurship, micro-employment, and new manufacturing. One goal of the pilot was to create awareness of "online income-generating platforms" for low-income communities in San Francisco. The city collaborated on this pilot in order to understand the barriers of entry into new forms of micro-entrepreneurial work.

The strategy for reaching these goals included a focus on curriculum development and the custom content design of four to five lessons. These lessons focused on "redefining work and paths" per an entrepreneurship model and micro-entrepreneurship opportunities such as with the "sharing economy."

Research to identify work platforms, barriers to participation, and key components of participation in San Francisco began in August 2014, with lessons content and curriculum testing following from September through October. Income opportunity areas had been designated to include disruptive peer economy platforms such as Lyft, Airbnb, udemy, Postmates, Esty and more. As of the writing of this report, the full launch of JobScout was planned for March 2015, but there was a delay because of a change in brand for one of its lessons. The change, MOCI noted, is indicative of the constant redefining characteristic of innovation culture within San Francisco and the need for cities to be responsive to pivots, as well as industry's and residents' needs.

Overview of Civic Engagement Events

Civic engagement events were CoLab activities implemented to optimize public and private sector collaboration, build continuous innovation, and strive toward improvements in the workforce system. Four events were held as of the writing of this report, two of which included engagement with the same partner, the Institute for the

Future. The other events (the Civic Design Camp and The Bold Italic) focused on addressing innovation and problem solving through tech design and the inclusion of underserved English language learner populations in the San Francisco Workforce. This section includes descriptions of these events and the legacies or products they produced.

Civic Design Camp (Hackathon)

On April 12, 2014, the Civic Design Camp at Code for America was held as a “hackathon” to invite new ideas and possibilities for candidates using “HireSF,” the City of San Francisco’s online, one-stop job matching portal (hiresf.org). As an interactive portal, the platform is designed to deliver employment services such as job searches, resume development, skills assessment, candidate searches, and more. The central question posed to participants at the event was: “How might we connect entry-level and low-skilled job seekers to job opportunities?” The overall goal of the event was to incorporate user centered design thinking within the government and through a diverse group of thinkers.

Representatives from MOCI and OEWD presented the site’s core functionalities (i.e., resume creation and job search), as well as some of the issues with the platform’s design, such as its length and “unnecessary” fields. The presentation also highlighted job service providers’ perceptions of the existing website. Job service providers often found the site to be a “burden” instead of a benefit. They wanted a website that made it easier to find qualified candidates for jobs both within and outside sectors such as construction, food, technology, and the maker movement.

One of the ideas that was generated during the event led to a “step-by-step map of experience” for a new HireSF that would work similar to “MeetUp.com,” but for jobs. This new HireSF tool, worked on by MOCI and a web developer from Yahoo, streamlined the candidate search for providers by making fields simpler and more constructive. Benefits of the new model included enabling CBOs to create candidate profiles, as well as functionality that enabled getting a “package” of candidates, inputting employer reviews of candidates, and incorporating feedback mechanisms.

Future of the Workforce Development Ecosystem and Map

The Institute for the Future (ITF) had been working closely with MOCI and OEWD to help inform workforce stakeholders about trends, promise, and growth within the workforce development ecosystem. ITF planned and produced research for a map that identified new collaborations, harnessed shared agendas within the workforce systems, and helped both organizations and job seekers navigate new and changing initiatives in the San Francisco workforce.

In September 2014, an internal workshop was held with ITF to provide content for further stakeholder meetings that occurred in October and November. On December 15, 2014, the group presented their research to community based organizations, workforce

providers, and government agencies. The presentation focused on “three big picture future forces” for the Future of the Workforce Development Ecosystem: automation, platform economies, and new learning flows. Forecasts were also made to stress the importance of topics such as task routing and supplemental income; cultivating social intelligence; amplifying work presence and opportunities to leave a digital footprint; and new learning and credentialing opportunities for both employers and job seekers.

In May 2015, IFTF’s research and work was further taken to conceptualize a hard-copy map that workforce stakeholders could reference and tailor to their needs. MOCI hopes to continue working with IFTF in the future, with plans for a slide deck currently in production.

The Articulate Workshop

On November 7, 2014, the city of San Francisco held the Articulate Workshop: Breaking the Language Barrier, “a creative workshop” to create tools to address challenges and issues facing English learners trying to get jobs in San Francisco. The workshop was part of a two-day design conference, called “The Sum.” Data presented at the workshop included information that language can be a barrier to getting, keeping, and advancing a job; statistics on the number of San Franciscans with English language barriers; and samples of English proficiency reading.

The issue of workforce development for English learners was selected for a workshop because, as staff noted, “Addressing basic skills deficiency is an issue for workforce development, adult education, and the school system.” The city conducted research for content and context, and collaborated with teams from the Bold Italic and Undercurrent to facilitate the event for participants. These partners were chosen through OEWD and MOCI networks that work on English as a second language (ESL) issues. MOCI noted that Undercurrent was actually recommended by Bold Italic as “issue experts” and worked pro-bono. Speakers addressed current issues concerning innovation within ESL teaching focusing on the Integrated Basic Education and Skills Training Program (IBEST) model, technological tools, and hybrid teaching methodologies.

Promotion for the event used diverse platforms through The Sum conference’s general conference promotion, Twitter, targeted emails, and outreach to design communities. While the event was open to the public at a fee, the target audience was involved with limited English proficiency (LEP) and adult education. The hope was that participants could “shepherd forward” solutions. Staff also mentioned that the Articulate Workshop differed from similar events (such as hackathons or design thinking events) in that it focused on ESL within the workforce. MOCI noted that insights from past events outlined the importance of having “a more directed scope for engagement” and having “experts in the room WITH technologists and designers.” The Articulate was considered a first of its kind for both MOCI and OEWD.

Discussion from those interested in ESL topics generated ideas for prototyping tools that could accelerate English learning and a \$1,000 honorarium was planned to be awarded at a future date.

Addendum Report. Piloting Platform to Employment® in San Francisco Lessons from a Formative Case Study

Platform to Employment® (P2E) was one of the CoLab pilot projects. WestEd conducted a separate formative evaluation of this pilot project, which is attached as an addendum to this report.



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