

Houston, Texas: Developing Prototypes for Workforce Development Strategies

Greater Houston is the nation's fourth-largest metro economy and has enjoyed four years of extraordinary growth, creating more than 480,000 jobs since the bottom of the recession—three jobs for every one lost.¹ But this growth has also intensified employers' struggle to fill key occupations, particularly in middle-skill careers and professions. Middle-skill jobs are those that require a high school diploma and some postsecondary education and training, but not necessarily a four-year college degree. UpSkill Houston, the regionwide business-led workforce collaborative effort,² projects that Greater Houston³ will have nearly 75,000 annual openings for middle-skill jobs over the next five to seven years.⁴

UpSkill Houston, and the local leaders involved in the Communities that Work Partnership (CTWP), have adopted a series of innovative prototypes to speed workforce innovation and to scale what works to meet the demand for these middle-skill jobs, with a focus on two of the region's fast-growing industries: petrochemical manufacturing and construction. The prototypes build collaboration among business, education, and community to unclog the region's talent pipelines and, in the process, fuel economic growth and opportunity for individuals and business. What sets the approach apart is UpSkill's commitment to speed up learning and then scale solutions—they see what works with early workforce initiatives in petrochemicals

KEY TAKEAWAYS

- Use workforce “prototyping” as a key strategy in workforce development to engage employers and speed up learning and then scale solutions.
- As a common business approach, prototyping resonates well with businesses, signals to business leaders that the work is designed with industry in mind, and is much more experimental and faster-paced than more typical “pilot” or “demonstration” programs.
- Start small with willing partners in a workforce prototype, learn from the experience, and then commit to expand what works into larger employer, education, and workforce practice and systems to create scale and make skill development solutions sustainable over time.
- To make it work, partners need an entrepreneurial, fast paced “can do, act now” attitude and a commitment to collective seeing, learning and doing.

and construction, discard what doesn't work, and then scale the learning and benefits to change employer, education, and workforce development practice to make solutions to the middle-skill crunch easier over time.

¹ US Bureau of Economic Analysis; JP Morgan Chase & Co, “Preparing Houston to Skill Up: Addressing the Skills Mismatch to Meet Employer Demand in High-Growth Industries,” *New Skills at Work*, 2014.

² UpSkill Houston is the region's collective-impact approach that is a business-led integrated workforce effort focused on closing the skills gap by increasing the number of Houstonians trained for careers in industries critical to the growth and well-being of the region.

³ Greater Houston covers the 11-county Houston-The Woodlands-Sugar Land Metropolitan Statistical Area defined by the federal Office of Management and Budget.

⁴ “Preparing Houston to Skill Up,” 2014.

CHALLENGES AND OPPORTUNITIES

Since 2010, Greater Houston has added over 700,000 new residents to the region, one of the fastest-growing metro areas in the United States.⁵ It also skews moderately younger than the rest of the US population, and it is becoming more diverse as its Hispanic population continues to grow. Although these demographics would seem to bolster the labor pool for area companies, two of the region's key industry sectors, petrochemical manufacturing and commercial and industrial construction, face severe current and future worker shortages. This is due in part to the sectors' rapid growth, driven by the expansion of manufacturing facilities and capacity. The region's 253 petrochemical firms—the manufacturers of the resins that go into just about every consumer product from shampoo to the treads on your tires—are investing \$50 billion in local expansion plans in 2016 alone. For their part, construction firms in the region are trying to keep up with a 50 percent increase in direct investment of new industrial construction, from \$9.7 billion in 2012 to \$14.2

billion in 2016, for the likes of petrochemical firms and commercial and institutional properties. These two industries along with others in the region are projected to have nearly 19,000 annual openings for skilled craft workers, such as pipefitters, welders, and process technicians, over the next three to five years.⁶

The skills shortage is also a result of the aging workforce across the region's middle-skill jobs. A JP Morgan Chase "New Skills at Work" report on the Houston economy shows that 20 percent of the workers in middle-skill jobs important to petrochemicals and construction are 55 years and older. Moreover, the lack of interest in, sufficient exposure to, or awareness of these industries by younger workers only compounds the problem. There is very little of an emerging pipeline of younger workers that these two industries can turn to fill the void of looming retirements. These combined factors represent one of the biggest demographic challenges facing Houston in the coming years.

But challenge can also lead to opportunity. Leaders of UpSkill Houston see these

COMMUNITIES THAT WORK PARTNERSHIP

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Seven regional teams were selected competitively in July 2015. Teams comprised three to four leaders and, importantly, included a private industry partner representing employer voice. The regional team in Houston, Texas, included the Greater Houston Partnership, United Way of Greater Houston, San Jacinto College, and Gulf Coast Workforce Solutions. The partners collaborated to advance industry-led workforce development strategies in their region. AspenWSI and a core management team facilitated peer learning and leadership development for the Communities that Work Partnership and documented their efforts in order to accelerate learning in the field. The seven Partnership Briefs are part of a package of learning materials to be released in the fall of 2016, available at as.pn/communitiesthatwork.

⁵ Peter Beard, "60 by 30 ... Houston Perspectives," presentation prepared for the Communities That Work Partnership network meeting, Galveston, Texas, April 2016. Data cited from the US Census Bureau.

⁶ "Preparing Houston to Skill Up," 2014.

challenges as an opportunity to provide a whole new, emerging demographic in the region with good, solid-paying jobs; an opportunity to fill a looming skills gap for important industries that are critical to the long-term well-being of the region; and an opportunity for the workforce development and education and training systems to build opportunity for individuals and solve a looming crisis for business. As leaders in the region like to say, there's reason for just about everyone to come to the table and find solutions.

UpSkill Houston's workforce prototype approach is a good way to seize these opportunities. Business, education, workforce and community collaborators are using the prototypes to meet industry demand quickly and effectively while providing real economic opportunity for the region's existing community members, especially low-income members who have been left out of Greater Houston's economic boom to date.

WHAT IS A WORKFORCE PROTOTYPE AND WHY USE IT?

As part of UpSkill Houston, the Houston CTWP team has adopted an innovative approach, borrowed from industry, to test out solutions to workforce challenges: prototyping. In the prototyping approach, UpSkill leaders quickly design a few different potential solutions to a workforce challenge. Then they implement them on a small scale and assess as a group what works and what does not. The leaders take that learning and incorporate what works into the next generation of workforce implementation and drop what doesn't work. The leaders share results and lessons learned with other employers, in part through return-on-investment scenarios. These conversations take place in existing industry sector council meetings of employer groups or in newly formed industry groups where current councils don't exist or aren't as strong. These groups aggregate the employer voice and, because of their reach across many employers, provide the foundation for scaling successful prototyped models.

Key Aspects of the Prototype Model

- Quickly designed and implemented
- Intentional planning and learning (from the beginning) to integrate what works into practices and systems
- Industry sector councils leveraged to scale change across employers
- Commitment to collaborative relationships that go beyond transactional, one-off benefits and instead link to a long-term shared vision for change

The workforce prototype approach is much more experimental and faster-paced than more typical "pilot" or "demonstration" programs. Rather than applying lengthy evaluation models or long training time, the prototypes employed by UpSkill Houston encourage creativity, innovation, and fast action in an environment where companies need skilled jobs filled quickly. The fast pace and quick-to-implementation ethos fits well with the region's "can do, act now" attitude that locals describe as part of the Houston culture. This cultural attribute is described by many partners as helpful to making the prototype model work because it ensures that UpSkill Houston works more at the speed of business to create meaningful results.

Importantly, the prototype approach resonates well with Houston-area businesses and signals to business leaders that the work is designed with industry in mind. Prototyping, after all, is a common business approach—in Houston and elsewhere. A prototype takes a new product idea from design phase to early implementation to mass production, just like how a Houston area petrochemical company might develop a prototype to increase the durability of the resins used to create longer-lasting automobile tires. The company uses the prototype to test the new resin composite design, draws up results, and then

takes what works and drives that standard through operational practices and processes to achieve greater production [scale]. When applied to a workforce effort, business more often than not understands the concept behind prototype application and relevance.

Finally, the prototype approach supports UpSkill Houston's commitment to the principles of collective impact, a strategy to actively coordinate and align their actions with a larger system of government, philanthropy, and business and community organizations, and to work toward the same goal. Central to collective impact is collective seeing, learning, and doing—in this case, by starting small with willing partners in an employer-community workforce prototype, learning from the experience, and then expanding what works into larger employer, education, and workforce practice and systems.⁷ [See chart.]

AN EMERGING SYSTEM OF PROTOTYPES

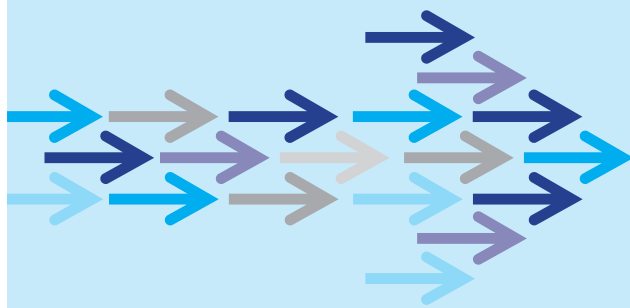
UpSkill Houston has adopted or launched four prototypes within a year. Three are focused solutions to train entry-level construction

workers to help address the middle-skill deficit in Houston's industrial and commercial construction industry. A fourth is focused on addressing the middle-skill shortage in the region's petrochemical manufacturing industry.⁸

One of the notable prototypes that illustrate the potential for scaled learning and new system practices is with S&B Engineers and Constructors. This 4,500-employee, Houston-based industrial construction firm led implementation of a Women in Construction pipefitting and safety training prototype in collaboration with the Gulf Coast Workforce Board/Workforce Solutions, the regions' workforce investment board and career centers, and the region's United Way THRIVE Workforce Connector, a network of community-based organizations that provide job readiness training, financial coaching, and life skills development to residents.

The three partners recruited low-income, under-employed women—nontraditional workers for middle-skill jobs in industrial construction—and launched the training prototype to test and deliver an “earn

COLLECTIVE IMPACT



- Understand that social problems—and their solutions—arise from **interaction of many organizations within a larger system**
- **Cross-sector alignment** with government, philanthropic, nonprofit, and corporate sectors
- **Organizations actively coordinating** their actions and sharing lessons learned
- All working toward the **same goal and measuring the same things**

⁷ Collective impact is the commitment of a group of important actors from different sectors to a common agenda for solving a specific social problem at scale.

⁸ Jacobs JumpStart Prototype is a collaborative between the national construction firm Jacobs, the Gulf Coast Workforce Board/Workforce Solutions, and Lee College that sourced and screened under- and unemployed residents who live close to one of their large construction job sites. Marek Bros. Disengaged Youth Prototype is a collaborative of the Gulf Coast Workforce Board/Workforce Solutions, SER-Jobs for Progress, and the employer, Marek Bros., that trained and employed 18-to-24-year-old disconnected youth. The Community College Petrochemical Initiative and East Harris County Manufacturers Association prototype focuses on engaging youth and current students in petrochemical career pathways from the highly diverse population of San Jacinto College. The final prototype is with S&B Engineers and Constructors [described in this brief].

and learn” model of pipefitting and safety training. S&B Engineers and Constructors invested approximately \$250,000 for an initial 20-person cohort to pay for the training and worker salaries. Gulf Coast Workforce Solutions, in partnership with S&B Engineers and Constructors, started recruitment with an email blast that came back with over 4,000 interested applicants. Over a period of a week the company and Workforce Solutions conducted phone screening and then direct interviews to get to a cohort of 20 women hired as full-time pipefitter helpers. Once selected, the women entered training and earned a regular, full-time wage [\$16.00 per hour] paid by the company with no public subsidy. Over four months the workers alternated their time in the program between pipefitting training in the classroom and work in the field. The workers also took part in ongoing financial coaching and life skills supports, provided by a collaborative of community-based organizations through United Way THRIVE Workforce Connector, and received mentoring from other employees at S&B Engineers and Constructors. Nineteen of the 20 women received their training credential upon completion, and the company hired the women in permanent positions, paying them \$18.00 per hour.

The scaled learning from the prototype has been extensive. For one, despite the relatively generous initial investment by S&B Engineers and Constructors, early quantitative results show net savings from the prototype. The savings were found in reduced per diem travel costs for workers (who would have otherwise been hired from outside the region), reduced worker safety violations and costs, and increased worker productivity for S&B Engineers and Constructors. UpSkill Houston's parent organization, Greater Houston Partnership, is working with S&B Engineers and Constructors and the other two prototypes to put together a larger business case for the program in order to

understand the return on investment in more depth.⁹

Recently, UpSkill Houston, with support from United Way, engaged McKinsey Social Initiative's Generation program to scale the prototypes to conduct six cohorts of 20 participants each. The program will build in a return-on-investment study for employers and one for participants. The effort will also refine the skills mapping that will improve and standardize the curriculum used in the training.

Moreover, the learning from the S&B prototype as well as the two other related construction prototypes mentioned above has been a catalyst for broader discussion among construction companies in the sector council. They acknowledge that they share skilled labor pipelines that will require new workforce practices in the construction industry as a whole. For example, one of the workforce challenges identified by industry was the stipulation or requirement that only journeymen can work on construction projects. This creates a disincentive and barrier to employ local residents with lower skills, because their skills cannot be developed and brought up to journeyman level in time for the job start. It also runs up costs because it forces contractors to seek trained journeyman from afar, which translates to high per diem travel benefits that could be used for other purposes such as training local residents. The S&B prototype tested if the additional per diem money otherwise spent bringing in workers from outside the region could be better used to invest in and train local community members for the same work—creating the long-term pipeline of workers needed to support construction in the region.

These lessons learned from the construction prototypes have shifted the mindset of construction employers from a narrow focus on contingent day labor, luring away workers from competitors, or reliance on workers from the outside to meet the industry's workforce

⁹ S&B is still following its workers to understand the return on investment. It is in the process of placing the participants at other job sites as the work on the job site used for training winds down.

needs. A collective recognition has begun to form that a better way forward is to invest in local workforce training and collectively build a shared, local talent pipeline. The quick startup and implementation of the construction prototypes helped employers see that local training in local residents can meet their needs. It also helped them realize that investment in training shouldn't be left to one-off transactions; rather it should include apprenticeships and career and technical training that link to secondary and postsecondary education.

The collective, systemic way of thinking about and discussing needs across the industry has also sparked additional discussions, which led construction employers and their partners to discover that subcontractors were hiring away students in craft training before they completed their programs, which hurt program completion rates.¹⁰ Contractor decisions were heavily influenced by the building owners' timelines and requirements, so those owners were brought into the conversation to work with the contractors and the training providers to ensure that students completed their training and then got hired—something that benefits the students, the immediate employers, and future employers.

Sharing lessons like these in the sector councils has helped industrial and commercial construction firms think differently about their workforce and see the benefit of investing in nontraditional populations to create a strong local talent pipeline.

Just as important, lessons from the prototypes didn't stop at industry's doorstep. Implementation of the prototypes was also used to test and then solidify a more coordinated system of worker financial coaching integrated with employer-based training. This was done with the steady hand and guidance of United Way's THRIVE Workforce Connector, a partnership with multiple community-based organizations to

implement a more coordinated, industry-integrated response that helps families meet ordinary expenses and set aside funds for emergencies and future needs. The network of organizations in the THRIVE Workforce Connector used the prototype to apply its new model of standardized services and collaboration around financial education, coaching, and asset development. The network also standardized measurement of outcomes across the system and helped partners learn what works and what gets in the way of better financial literacy supports—findings that can be applied to other workforce training projects.

MOVING FORWARD

UpSkill Houston's overarching goals are to find workers good jobs, build rewarding careers, and provide area business with skilled workers that create a prosperous region. Although nothing about achieving those goals is straightforward, the leaders of UpSkill Houston are using the prototyping approach to start making progress. The four initial prototypes have already led to some new ways of organizing how low-income workers receive services and link to the workforce system and jobs. And, for their part, employers have begun rethinking their approaches to developing a common, skilled labor pool built for the future.

As noted above, UpSkill Houston is partnering with McKinsey Social Initiative's Generation Program to scale the training prototypes, strengthen the curriculum, and build in return-on-investment studies. In addition, UpSkill Houston is also considering how it might prototype an approach that uses sophisticated predictive analytic models that integrate neurocognitive test results with assessment of personality, attitudes, and motivation. The approach seeks to connect workers with a career and occupation in which they will likely be successful and to help employers make better hiring decisions.

¹⁰ Many of these conversations occurred at the ready-made Construction Sector Council, a collection of the region's largest and most influential industrial and commercial construction contractors. UpSkill Houston organized the council to bring together these employers in order to unearth common and intra-sector workforce challenges.