

REPORTING ON

WHAT WORKS FOR CITIES

Building an Inclusive Tech Economy: Internship Programs that Connect Inner City Workers to Jobs in the Technology Sector

City leaders from across the U.S. are trying to position their municipalities to benefit from the dramatic growth of the technology sector. But they often underestimate one of the most significant barriers to growth: the inability of rapidly growing technology businesses to fill essential positions. They may also overlook the fact that a thriving technology sector does not necessarily translate into jobs for those who need it most. In this issue, we offer one strategy that has the potential to help address both issues—internship programs.



In New York City, the dramatic growth of the technology sector over the last decade has made it increasingly challenging for tech-based businesses to fill their open positions.¹ Job growth has outpaced workforce growth, particularly among web programmers and developers, digital designers and engineers. In response, former Mayor Michael Bloomberg directed the Department of Small Business Services (SBS) to assist in developing a pipeline of technology workers and, as a result, SBS established two new initiatives: the New York City (NYC) Web Development Fellowship and the Brooklyn Tech Triangle Internship Program.

As part of the process, SBS enlisted ICIC's help in identifying best practices from technology-focused internships across the country. Our initial research revealed that tech companies in several other cities have encountered similar challenges filling open positions, yet relatively few programs have been developed to facilitate internships specifically geared towards the tech industry, and even fewer have been around long enough to demonstrate measurable results.

Leveraging ICIC's deep knowledge of the inner city workforce and the technology industry, along with new research on internship programs, we have identified four key strategies for building successful tech-oriented internship programs. The focus of this report is on college-level internship programs because of the preference many tech companies have for interns at this experience and education level.

Innovative Programs in New York City

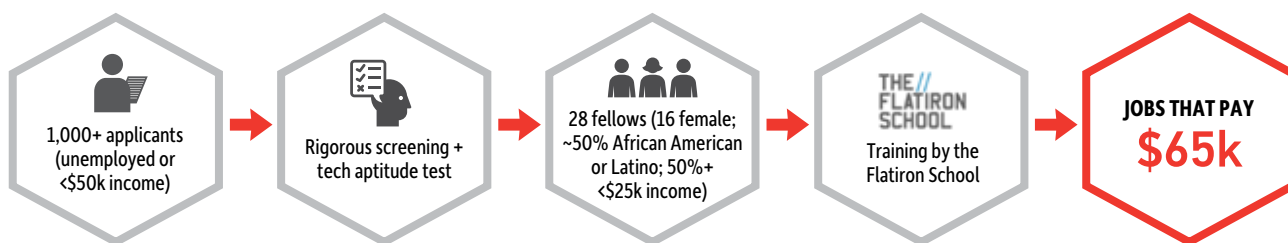
SBS designed the NYC Web Development Fellowship to equip New Yorkers with the skills required to begin a career in web development, at no cost to the participants. The training is delivered by The Flatiron School in space renovated by SBS for the program in downtown Brooklyn, the epicenter of a growing number of tech companies. The first cohort of 28 students, in 2013, was selected from over 1,000 applicants that went through a rigorous competitive screening process focused on the candidates' aptitude for technology jobs. The process included an interview and testing process to identify the right candidates for the program.

Among the specific eligibility requirements, applicants for the Fellowship must be at least 18 years old, be a resident of New York City, never have worked as a web developer and earn less than \$50,000 annually or be unemployed. Of the initial cohort of 28 Fellows, 16 were female and about half were African-American or Latino. Moreover, more than half earned less than \$25,000 when they applied. Upon graduation, the graduates will receive support connecting to jobs that pay over \$65,000 annually. The training for the second cohort of Fellows will run from March to August 2014.

The Brooklyn Tech Triangle Internship Program grew out of an idea to fill tech industry workforce gaps in a distinctly different way: by helping local students gain work experience in the tech sector, and by demonstrating to local

KEY INSIGHT

NYC Web Development Fellowship 2013



¹ Dr. Michael Mandel, South Mountain Economics LLC: "Building a Digital City: The Growth and Impact of New York City's Tech/Information Sector." September 30, 2013.

businesses that these students have at least some of the skills they require and are thus prospective candidates to fill the businesses' most pressing job openings.

SBS also saw this program as an opportunity to help keep students on track to graduate. One way to engage students is to give them exposure to the tech sector through internships. "As an agency, our strength is connecting businesses and workers," says Natalie Fabe, Director of External Relations and Special Projects at the NYC Department of Small Business Services' Workforce Development Division. "For us, it was a natural solution to offer an internship program that would connect locally based Brooklyn tech businesses with area college students who are skilled in web programming, design and engineering."

The Internship Program was launched in the summer of 2013, with 28 students from the New York City College of Technology (City Tech), a City University of New York College. The students interned at 19 different organizations throughout the Brooklyn Tech Triangle.² One key feature of the program that has helped make it successful is its competitive selection process. Candidates are initially screened by SBS and then placed in front of employers who interview them and extend offers to those candidates best suited for internships at their companies. Any student who does not receive an offer is not eligible to participate in the internship program.

There are additional program features that further engage students. On "Tech Fridays," students visit different tech businesses to expose them to a broader cross-section of the tech sector. Through Tech Entrepreneurship 101 training, students learn about what it takes to start and run a tech business.

The NYC Web Development Fellowship and the Brooklyn Tech Triangle Internship Program concentrate on closing the gap between the opportunities available at New York City's growing tech companies and the City's workforce. Importantly, quality partnerships were required to get these programs off the ground. By focusing on Brooklyn, SBS chose an area that already had a lot of concentrated activity and began working with partners that were already involved and established on both the business and student side. This enabled SBS to get up and running quickly.

KEY INSIGHT

Important Partners in the Brooklyn Tech Triangle Internship Program:

- Brooklyn Navy Yard Development Corporation
- Downtown Brooklyn Partnership
- DUMBO Business Improvement District
- Mayor's Office
- New York City College of Technology (City Tech)

"Having institutional partners that could serve as touch points for businesses in the area where we were trying to work was key," says Fabe. "Our main partners are the Brooklyn Navy Yard Development Corporation, which recruits businesses and runs the internship program on a day-to-day basis; the Downtown Brooklyn Partnership and the DUMBO Business Improvement District, which have strong relationships with area businesses and help us reach out to these businesses and provide insight into which ones could best take advantage of the program's opportunities; and the Mayor's Office of Media and Entertainment, which funds the initiative and also helped us make initial connections to many technology companies." Further, having a strong university partner, such as City Tech, that is responsive and flexible and has a large pool of students with in-demand skills (such as programming and design) is also a key to success.

The following sections highlight insights from ICIC's research on tech internship programs from across the country that helped to inform the Brooklyn Tech Triangle Internship Program model in New York City. The strategies outlined below represent best practices for all internship programs, regardless of sector, but we link them to the specific characteristics of the technology sector and highlight successful tech internship examples throughout the discussion. [Click here for a link to the full ICIC report, "Brooklyn Tech Triangle Technology Internships: Best Practices for Connecting Educational Institutions and Local Technology Employers."](#)

² Geographically, the Brooklyn Tech Triangle is a section of Northwestern Brooklyn anchored by the DUMBO Business Improvement District to the north, Pratt Institute and the Brooklyn Navy Yard to the east and NYU Polytechnic Institute to the south.



Strategies for Building a Successful Tech Internship Program

Across many industries, internship programs have successfully created a talent pipeline and trained individuals to meet employer needs. Traditional models, however, often fail to meet the needs of the technology sector. Typically, college-level internships are either school-administered and cater to student interests or are employer-run with a focus on an individual company's needs. These models work well for many well-established businesses but tend to exclude smaller companies with limited capacity to assume the administrative and managerial burden of implementing a program. Fast-growing technology firms tend to have small, if any, human resource departments and are more intensely focused on product development than on workforce development. These challenges, compounded by rapidly changing technology and workforce needs, limit the capacity of many tech companies to successfully implement an internship program.

STRATEGY 1: FOCUS ON EMPLOYER NEEDS

To support the growth of the technology sector, it's important to understand the actual needs of its businesses. Recruitment efforts, compensation arrangements and program timing should all be aligned to facilitate a match that benefits the employers while also providing a rich learning experience for the intern. A number of factors should be considered:

Level of technical expertise needed: Employers may need interns to fill either technical or business support roles such as marketing, finance or administration. The business needs and employers' desire for "taught" or "teachable" interns will dictate the program's level of selectivity. A more selective program is often necessary for businesses that seek interns with particular technical skills, while less stringent criteria might allow businesses to gain more general support from students looking to develop new skills. This distinction is important in order to identify the potential internship opportunities that are available for inner city residents who may lack "taught" skills but have the aptitude to become "teachable" interns.

For example, Enstitute, a New York-based apprenticeship program that matches aspiring tech professionals with tech employers, and who partnered with SBS to carry out the

Tech Entrepreneurship 101 module, has found that many of its host companies prefer teachable interns that can easily adapt to unique business needs. As a result, Enstitute requires only that applicants have a high school or equivalent degree and does not specify technical prerequisites or demonstrated expertise.³

Process and timing: Summer interns are typically able to work a full-time schedule for 8-12 weeks, while school-year interns can commit to fewer hours per week for 10-15 weeks. Most summer programs accept applications in the late fall and match interns and employers in the spring. The size of the employers in the program affects the time span: smaller, fast-paced companies are more likely to turn their attention to summer interns in January or later. Year-round programs typically have a rolling intake process for both students and employers. The employers' level of involvement in the matching and selection process varies depending on interest and capacity, but it's crucial for potential employers to meet candidates before placements are officially confirmed. Similarly, clearly defining intern roles and responsibilities in advance can help facilitate a smooth and successful internship experience for both the employer and intern.

Campus Philly, which runs a summer Startup Scholars program to match undergraduate students from nearby universities with opportunities at local tech companies, finds that large companies typically begin seeking interns in October, while smaller companies tend to commit to participation in January or February.⁴

Intern compensation: The vast majority of programs we researched offered a stipend or hourly compensation, and required at least partial funding from employers. Even modest compensation tends to increase the interns' accountability and professionalism, and the company's financial investment enhances its commitment to student success. If funding is limited, alignment and motivation concerns may be adequately addressed by offering college credit, certifications or other credentials.

KEY INSIGHT

Some companies prefer interns who may lack "taught" skills but have the aptitude to become "teachable" interns.

³ Learn more at <http://www.enstituteu.com>

⁴ Learn more at <http://campusphilly.org/startupphl/>



STRATEGY 2: OVERINVEST IN EMPLOYER RELATIONSHIPS

Meeting employer expectations is critical to long-term program success and requires close relationships with participating businesses. Direct, ongoing interaction with employers will allow the program to effectively match intern skills to company needs and adapt to the unique and changing demands of the technology industry. Urban tech businesses often form highly connected, tight-knit communities. Therefore, ensuring a positive employer experience through strong communication, streamlined processes and operations, and supplying high-quality interns is crucial to credibility and long-term impact.

Successful programs use a variety of tools to better serve the needs of employers:

- internship guide or handbook
- assistance with identifying internship needs and/or writing job descriptions
- intern candidate pre-screening
- intern supervisor training
- subsidies (typically used toward intern compensation)
- process for addressing problems throughout the internship

New Sector Alliance, which matches interns to nonprofit organizations that share the technology industry's typical resource and capacity limitations, is a great example of a program that facilitates successful matches using a hands-on approach.⁵ Program staff guide employers through the application and matching process and offer assistance in finalizing project scope and identifying key qualifications for successful candidates. New Sector also assumes the burden of screening, interviewing and checking potential intern references before making final recommendations to the employers. This process enables employers to get maximum value out of the interns with minimal distraction from day-to-day operations.

KEY INSIGHT

Use cohort programs to increase the likelihood of interns pursuing tech careers in your city to develop a pipeline of talent.

STRATEGY 3: PROVIDE BASIC TRAINING AND SUPPORT FOR INTERNS

Poorly matched interns who require significant management may not be able to add net value to the business. The overall success of any internship program thus relies on quality control in the matching process, a clear understanding of employer needs and student capabilities and making placements appropriate to student experience.

In addition, the limited work experience of many interns makes it extremely important to identify and address gaps between intern skills and employer needs. Since employers often vary in their needs for “taught interns” or “teachable interns,” evaluating the students’ professional and technical capabilities and developing appropriate guidance, trainings, workshops and seminars to ensure workplace success will help both interns and employers.

Successful programs offer support for their interns:

- ongoing mentorship and career advising
- weekly professional workshops to address project management, professional conduct, conflict management, networking, etc.
- structured training to develop high-demand technical skills, such as programming languages and coding

There are a number of ways to address intern training and support. Enstitute, for example, requires participants to attend a two-week boot camp to guarantee a basic level of technical knowledge before individuals begin working with employers. The StEP program at the University of Massachusetts at Boston Venture Development Center places entrepreneurial students in startup businesses and provides a manual and video to students on how to be successful at a high-tech startup.⁶ Other programs provide ongoing weekly training sessions that include seminars with tech professionals, workshops and career development lessons.

⁵ Learn more at: <http://www.newsector.org/>

⁶ Learn more at http://www.umb.edu/entrepreneurship_center/step



Successful internship programs also incorporate clear escalation procedures to address any issues that may arise with interns:

- methods for identifying and addressing the root of the problem
- procedures for addressing problems using site visits or meetings with employers and interns
- circumstances under which internships will be ended
- alternative placements for students who are removed from internship positions, if appropriate

KEY INSIGHT

Interns need up-front training and ongoing support for success. Put clear escalation procedures in place to handle any problems before they happen.

STRATEGY 4: PROVIDE OPPORTUNITIES FOR PEER CONNECTIONS DURING AND AFTER THE INTERNSHIP PROGRAM

Creating a shared experience and fostering peer-to-peer support is a common way for internship programs to reinforce professional networking career development and technical skills. A strong sense of community among interns and alumni improves the overall participant experience for students and impacts their success in the program and interest in longer-term opportunities with local businesses and the tech industry in general.

Campus Philly's internship programs, for instance, make a special effort to host social events for their summer cohorts to make them feel at home in the city. Efforts to build a strong sense of camaraderie among the interns and sense of belonging in the city increase the likelihood that the students will remain in Philadelphia upon completing their degrees. This helps to ensure a pipeline of talent for the growing tech industry.

KEY INSIGHT

Use cohort programs to increase the likelihood of interns pursuing careers in the technology industry in your city to develop a pipeline of talent.

Implementation Recommendations

START WITH A MANAGEABLE PILOT PROGRAM

The long-term viability of any internship program relies on good design and implementation; quality control is vital. A small pilot program with strategic expansion over time will maximize the internship administrator's ability to create an effective program. The size of the program should be determined by weighing the desired outcomes for local businesses and residents against the practical realities of program implementation. Wide student interest may exceed the capacity of small businesses, or businesses' demand may surpass intern availability.

The Massachusetts Life Sciences Center Internship Challenge illustrates a slow-growth approach.⁷ In its inaugural year, the statewide program placed 104 students from 29 colleges and universities with 59 employers. Its four-year expansion plan included adding more colleges and universities, graduate programs and additional employers. In its fifth year, the Internship Challenge hosted a year-round program that placed 346 students from 80 academic institutions at 205 companies. This particular program also laid the groundwork for the MassTech Internship Program, launched in January 2013, which has already begun to successfully implement programs tailored to the needs of the tech sector.⁸

ENSURE ADEQUATE ADMINISTRATIVE RESOURCES

Most multi-school, multi-employer internship programs operate with a small dedicated program staff and a strong focus on outreach and relationships; however, the programs still require dedicated resources on both sides. Successful programs leverage technology and partnerships to improve efficiency and effectiveness.

The Campus Philly Startup Scholars program is a great example of an efficient internship program. It partners with Benjamin Franklin Technology Partners (BFTP), a technology-based economic development program in Pennsylvania. BFTP's strong ties to local technology companies make it an ideal recruiting partner and enable Campus Philly to focus on its strong existing relationships with local schools, career development offices and students. Upon the conclusion of "recruiting season," Campus Philly shifts its focus to matching, program implementation and management.

⁷ Learn more at <http://www.masslifesciences.com/programs/internship/>

⁸ Learn more at <http://masstech.org/intern>



EVALUATE OUTCOMES FOR CONTINUOUS IMPROVEMENT

Soliciting input and feedback throughout the planning and implementation process is necessary to build and grow an effective program. A majority of the internship programs we studied engage potential and participating employers and interns, schools and community partners for information. They use applications, surveys, informal conversations and interviews.

Information that is typically collected includes:

- employer-desired skill sets, credentials, prerequisite classes
- employers' (or potential employers') unmet intern needs and upcoming opportunities
- number of intern positions available and responsibilities of each position
- number of interns placed
- intern skill development
- employer satisfaction and retention
- intern satisfaction
- number of employment offers made to interns
- number of interns that accepted job offers
- wage levels of new hires

The information collected should align with overarching program goals and should inform either immediate or future program adjustments. The Massachusetts Community College Tech Apprentice Program, for example, has used feedback from participating employers to clarify its communication to students to ensure that they are prepared for available opportunities and appropriate interaction with potential employers.⁹

Conclusion

The technology industry's unique workforce challenges and rapid growth in some cities have left many companies struggling to find employees. With a vast majority of technology jobs requiring some level of previous work experience, internship programs present an opportunity to train individuals preparing to enter or returning to the workforce, including inner city residents who may lack specific technology skills but have sufficient capacity to become teachable interns. An internship is a relatively low-cost program that enables employers to test potential new hires and interns to gain relevant experience working in the technology field.

Tech-oriented internships have shown promise in their ability to support the growth of urban technology industries. The Brooklyn Tech Triangle Internship Program in New York City offers a promising model that could be replicated in other urban areas. A complete set of recommendations and examination of existing internship programs can be found in our full report. [Click here for a link to the full ICIC report, "Brooklyn Tech Triangle Technology Internships: Best Practices for Connecting Educational Institutions and Local Technology Employers."](#)

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ABOUT ICIC

ICIC is a national, nonprofit research and advisory organization founded in 1994 by Harvard Business School Professor Michael Porter. ICIC's mission is to drive economic prosperity in America's inner cities through private sector investment that leads to jobs, income and wealth creation for local residents.

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⁹ Learn more at <http://batec.org/>



ICIC launched the ***What Works for Cities*** campaign to engage city stakeholders and address some of the nation's greatest urban economic and business development challenges. Through reports, webinars, convenings and case studies, ***What Works for Cities*** brings to light initiatives that are successfully growing industry clusters, strengthening business environments and supporting the growth of individual firms. Learn more at **whatworksforcities.com**.

ICIC'S **MISSION** IS TO DRIVE ECONOMIC PROSPERITY IN AMERICA'S INNER CITIES THROUGH PRIVATE SECTOR INVESTMENT TO CREATE JOBS, INCOME AND WEALTH FOR LOCAL RESIDENTS. WWW.ICIC.ORG



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