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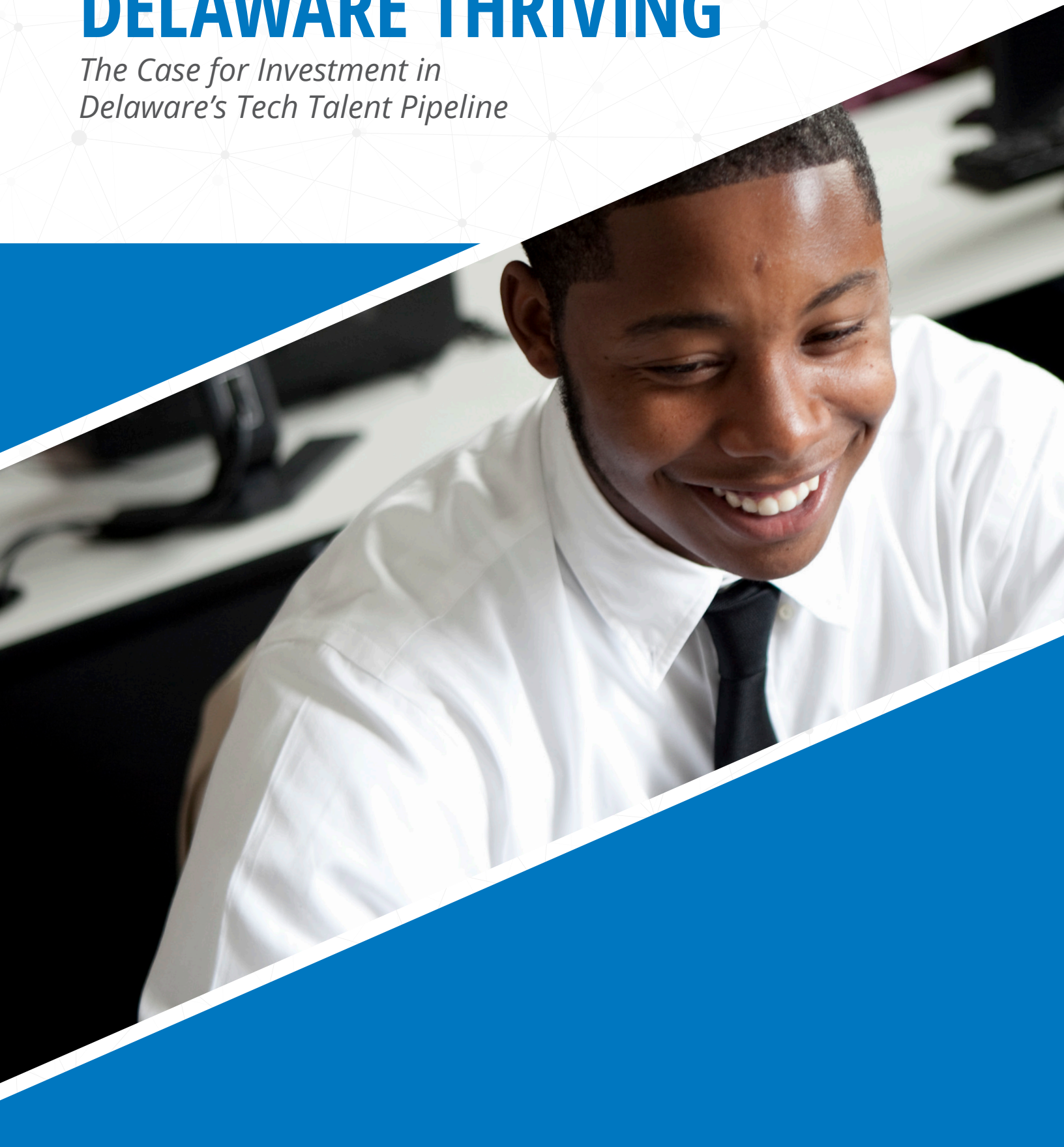
DELAWARE THRIVING

The Case for Investment in Delaware's Tech Talent Pipeline



ITWorks students work toward certification and entry-level IT roles.

ABOUT THIS ISSUE BRIEF

The following issue brief is designed to explore current market demands and opportunities for growing a thriving technology talent pipeline in Delaware. Specifically, the brief explore ways in which employers, government agencies, and nonprofit training partners can collaborate to better attract and develop talent to fill current and future technology positions in the state, while also elevating several creative solutions for building and attracting tech talent. Through a series of interviews and third party research, this paper—developed by Delaware-based nonprofit Tech Impact—explores the state's current programs and partnerships, as well as opportunities to strengthen Delaware's position as an emerging tech market.

SETTING CONTEXT

"It's a talent war."

A simple statement, perhaps, but one that sums up the current state of Delaware's tech talent pipeline. It's a sentiment heard over and over again from a wide range of subjects—from elected officials and corporate leaders, to young alumni of technology bootcamps and similar programs—all of whom were interviewed in the development of this issue brief.

Like much of the country, Delaware's unemployment rate is very low—3.4 percent in August 2019.[1]

And yet the opportunities in Delaware's tech sector are significant. In 2018, there were 13,938 tech occupation job postings in the state, according to the latest CompTIA 2019 CyberStates report. The majority of those job postings carry an average wage of $92,568—which is expected to increase 12.2 percent by 2026.

For Delaware-based recruiters desperately seeking mid- to high-skill workers to fill those tech-centric positions, the competition for a limited supply of qualified candidates is fierce.

Compounding the competition for a diverse pool of qualified tech employees is the reality that technology skills are needed across nearly every company and industry.

Banking, one of Delaware's most historic and long-standing industries, has evolved into financial technology—or fintech—creating significant local demand for tech employees. However, a recent report focused on the state's fintech sector stated that "…a national shortage of tech talent means that Delaware financial services firms are competing for top talent with firms in tech and non-tech industries across the country. Continuing to build a robust pipeline of tech talent at institutions within Delaware and the broader region will be critical in meeting local employer demand."[2]

The same report—released in 2019 by Delaware Prosperity Partnership, First State Fintech Lab, and the University of Delaware's Biden School of Public Policy & Administration—found that in 2018, "tech occupations accounted for 19 percent of the job openings [at] twenty financial services firms… At Capital One, tech jobs accounted for 43 percent of the job postings, while at TD the figure was 29 percent, and 26 percent at JP Morgan Chase."

Patrick Callihan, executive director of the nonprofit Tech Impact, echoes the report's sentiments. "We have a thriving tech sector in Delaware but it is somewhat hidden from view because it's incorporated into so many of the financial sector businesses already here."

Callihan stresses the importance of building a larger platform for the state's tech sector in order to meet both existing and future staffing demands for the current corporate base. He highlights that it is both a matter of retention and new business attraction. "But none of that happens without focus," he said, "and without a plan."

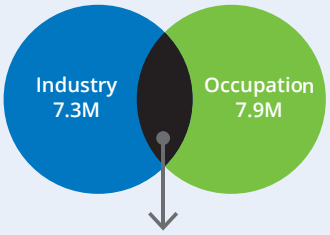
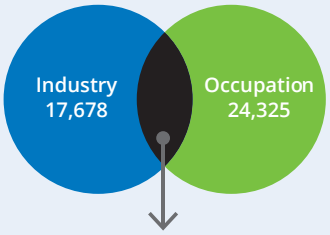
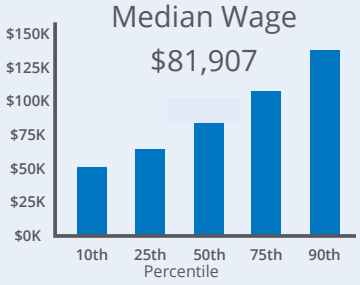
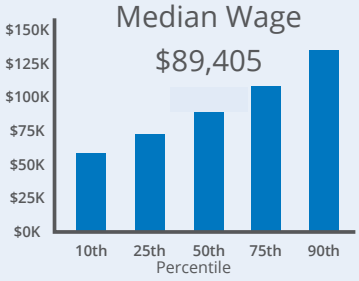
With a strategy to engage employers, industry leaders, public officials, and workers across the state, Delaware can improve its tech talent pipeline, build its economy, and get more residents prepared for and into the jobs of both today and tomorrow.

This issue brief explores several ways to bridge gaps between where companies in Delaware are feeling the most strain for talent—identified as mid- to high-skill IT jobs—and the available labor pool.

"If there's any place that can do this, I think Delaware is that place," Callihan concluded. "It's an incredibly friendly business environment, and a place where private business, academia, nonprofit organizations, and government comes to the table together to solve challenges. If we put our minds together and come up with a plan, we will be successful."

> **"Broadly speaking, when I'm with other healthcare tech execs, we see the same shortages… There's not enough talent being produced. A significant number of open roles. Significant voids in employment. Delaware should be on cutting edge as a banking industry… Delaware could become an epicenter of producing great talent."**
>
> *Randall Gaboriault, MS, Chief Information Officer, Senior Vice President, Innovation and Strategic Development at Christiana Care Health System*

The Tech Field: United States vs. Delaware

United States		Delaware
	VS	
524,912	**Tech Business Establishments**	2,704
3,714,898	**Tech Occupation Job Postings**	13,938
	**Net Tech Employment**	
46% Intersection = 11.8M Net Tech Employment		48% Intersection = 33,527 Net Tech Employment
1. Software & Web Developers 2. Network Architects, Admins, & Support Specialists 3. Computer System & Cybersecurity Analysts	**Top Tech Occupations**	1. Software & Web Developers 2. Computer System & Cybersecurity Analysts 3. Network Architects, Admins, & Support Specialists
	**Tech Occupation Wages**	

Source: *Cyberstates 2019* by The Computing Technology Industry Association

THE PRESENT-DAY PIPELINE

Building Upon What's Working: Opportunities for Opportunity Youth

One of the many bright spots in Delaware's tech talent landscape is the success of programs like Tech Impact's ITWorks and Zip Code Wilmington, as well as Year Up Wilmington and McKinsey's Generation, all of which have significantly contributed to the entry-level tech talent pool in Delaware. Many of these programs target Opportunity Youth—defined by the Aspen Institute as young people between the ages of 16 and 24 who are neither enrolled in school nor participating in the labor market. Tech Impact and Zip Code Wilmington specifically offer a boot camp-like program designed to transform graduates into job-ready applicants, and both have been incredibly successful at closing gaps in entry to mid level tech talent within the state of Delaware. Tech Impact was instrumental in the creation of Zip Code Wilmington, in partnership with its founders, and managed the start-up and first-year operations before it became its own non-profit entity.

ITWorks is unique in its approach to specifically engage those with a high school diploma or GED. ITWorks offers a tuition-free, but full-time 16-week session that prepares its graduates for entry-level IT careers. To date, the program has graduated more than 500 students, 75 percent of whom were employed six months afterward.

Aundre Chambers, 26, graduated from ITWorks in 2015. "It came at a time in my life where I didn't really know what I was doing, or where I was going," he said. "But I knew that if I didn't do anything, or do something quickly, who knows what was going to happen. That's when I found Tech Impact and I enjoyed every minute of the class." Today, he is an Associate Systems Engineer at WSFS Bank, and is one of Tech Impact's biggest advocates.

Zip Code Wilmington was cited in nearly every interview as a program directly helping to build the area's entry to mid-level tech talent pipeline. Zip Code Wilmington has a broader audience and welcomes students of all ages, career paths, and backgrounds. Their employer network collaborates with Zip Code Wilmington to develop a curriculum tied directly to industry needs, and works with students by providing full time positions and "tech talks" with industry experts.

Rob Rishel, Executive Director for the ServiceNow practice at one of Delaware's largest employers, Computer Aid Inc (CAI), commended ITWorks and Zip Code Wilmington for providing students who are job ready on day one. Programs like these have "... been a Godsend in the sense of having folks really know what to do when they start versus comparable resources where the onboarding and learning curve is significantly greater," he said. "Traditional college graduates tend to learn an awful lot of theory but the practical aspects of how to apply that in a business setting is a notch or two behind a program like ITWorks."

The Missing Middle

The success of these programs has led to an influx of entry-level tech talent in the Delaware hiring market, but it has not necessarily helped companies with a need for higher-skilled tech talent to fill in-demand positions within cybersecurity, data analytics, and cloud infrastructure. Nearly every person interviewed for this issue brief cited the urgent demand for employees with these more advanced skill sets—and the challenges they have faced finding qualified candidates.

James Collins, CIO of the State of Delaware, echoed those concerns. "One of the challenges that I've seen with some of the young folks coming out of traditional higher education is that they seem to have a disproportionate amount of theory compared to actual experience," he said. "In my opinion, all those programs need to evolve to include experiential learning through the development of extensive industry partnerships—it's a win-win."

Certainly, entry-level talent can be trained in-house for more senior positions. However, for those with immediate needs, the applicant pool for higher-level positions is extraordinarily tight—and there may not be time to wait.

Zip Code Wilmington brings in industry experts to talk to the students about working in the IT field.

In these interviews, there was a clearly identified need among Delaware employers for hands-on training programs, such as those referenced above, to develop a more robust mid- to high-level tech talent pipeline. In Philadelphia and Las Vegas, for example, the success of their local ITWorks programs have led to the development of ITWorks 2.0, an eight-week program for ITWorks graduates to develop next-level skills in order to continue advancing their careers. Bringing similar programming to Delaware would benefit Delaware's residents, employers, and economy.

"If I have to go out into the market for a position, and there's limited supply, all we're really doing is driving up salaries—and not necessarily for stronger candidates," added CAI's Rishel.

Delaware's Secretary of Labor, Cerron Cade, agreed. "One of the greatest opportunities for tech pipeline development comes from people who are redefining what their professional career looks like, and transitioning from what they're already doing to more tech-driven opportunities."

To that end, as advances in automation and other technologies are changing how many companies do business—many professionals are citing the need for additional training, upskilling, or certification options to advance their careers, and to have a real chance at joining the tech sector. Companies are beginning to look more directly at the role they can play in upskilling that offers equitable pathways to wealth-building careers.

Look no further than Amazon as one example, which recently announced plans to retrain one-third of its U.S.-based workforce. According to the Wall Street Journal, "Amazon will retrain 100,000 workers in total by expanding existing training programs and rolling out new ones meant to help its employees move into more-advanced jobs inside the company or find new careers outside of it."[3]

"How we help facilitate this shift will be a big question over the coming years," Secretary Cade added. "A lot of services are already available for people who are unemployed...but areas we don't really have a lot of answers for are those who are trying to re-educate. Most training systems are built for people who have lost their job, not really for those who are underemployed."

The Growth of IT Jobs in Delaware

6.5% From 2010 to 2018, IT jobs in DE grew 6.5%[8]

12.6% IT jobs are expected to grow 12.6% by 2020[9]

Students in the ITWorks program learn through hands-on experience.

LOOKING AHEAD

"Protect, Then Scale": Delaware's Homegrown Talent

Compounding the need for skilled tech talent in Delaware is the fact that the First State could be losing much of the talent it has to other markets.

Take for instance one recent ITWorks graduate (name withheld for confidentiality), considered by most accounts a success story for Delaware given how access to tech education "changed the trajectory of not just my career, but my life," who is considering relocating out of the state.

"ITWorks did its job by putting me on a path to enter the tech sector, but the reality is that jobs in Delaware are just not paying enough," said this recent graduate. "I'm looking at average salaries of my position elsewhere with salaries that are almost double." The individuals mentioned a colleague who moved to Texas to work for a technology company—and is making $20,000 more per year.

With lucrative opportunities in other states, Delaware must not only build pipelines to foster a robust pipeline of tech talent, but also be competitive to keep existing talent in state. "Before turning our attention to recruiting from other parts of the country, let's focus on protecting the talent that's right here in our state," added Callihan.

Once a clear and coordinated strategy to protect and grow Delaware's talent pipeline is in place, there are endless opportunities to then position Delaware as "the place to be" for emerging technology opportunities.

"It is true that we need lasting opportunities for young people if we're going to be competitive in this economy. We need to prioritize our residents first," said Delaware Governor John Carney. "But we've got to attract new tech employees from outside of the state and build those pipelines within Delaware as well. And we have some really successful and innovative programs to do that."

Glenn Force, Administrative Vice President of Institutional Client Services Technology at Wilmington Trust, M&T Bank, agrees. "We're finding that folks [in the local market] tend to be happy in their current locations, so we really need to draw talent to us," he said. "It's a matter of going out to find candidates in the current marketplace, but we tend to not find a lot of candidates looking."

The Opportunity for Thinking Regionally

In addition to building a strong tech ecosystem in Delaware, a regional strategy may prove effective for even greater impact." Jennifer McDermott, Executive Director, Global Technology Workforce Strategy at JPMorgan Chase, pointed to successful models within the region, specifically the Greater Washington Partnership.

"To be a producer of strong technical talent that's attractive to the region at large, or even nationally or globally, is a great story," she said. "We have to be aware of how we work together as a region, particularly with Baltimore and Philadelphia, to leverage best practices and become stronger together."

Technical.ly's Chris Wink has reported extensively on Delaware's tech workforce needs, and calls the need for a better-defined statewide identity and culture "so important to Delaware's future for the millennial workforce"—a sentiment he has been steadily promoting for several years. In 2017, he told the Delaware Business Times that "[f]or Delaware to thrive in the future, the state needs a dense collection of the kind of smart people who will power the economy. That means we need companies of every size, a dynamic city people want to live in and the kinds of events that bring all of this together."[4]

And The Opportunity for Thinking Differently

One interesting model that promoted the state's livability and tech-savvy was a competition known as OpenBracket Delaware. The coding championship invited top coders from across the country to Wilmington, Delaware to compete for $100,000 in prizes. The competition provided a chance for some of the nation's top coders to experience Delaware first hand, learn about the region, and the opportunities available.

While the program was short lived, it is still seen as an innovative and creative way to elevate Delaware as a growing tech hub. Bringing back OpenBracket Delaware is a concept worth exploring, with heavy promotion in tech-heavy markets—particularly along the Eastern seaboard. The competition could be lucrative for tech talent at all levels and particularly independent contractors. At the same time, the competition could cross-promote the benefits of living in Delaware—cost of living, tax advantages, available jobs, etc.—all of which are attractive messages for mid-to-high level tech talent.

LEARNING FROM OTHERS

The reality is, Delaware is far from alone in its challenges to build and foster a thriving tech sector—with a thriving workforce. But there are many examples of what's working in other parts of the country, which may serve as inspiration for Delaware's current challenge.

The Apprenticeship Model

One concept that has taken hold in many geographies is the formalized apprenticeship model, specifically for tech-centric positions, and in particular for mid-career professionals seeking new skills to either advance their career or switch careers altogether. In many cases, apprenticeships provide opportunities for public/private partnerships that are a win-win situation for employers, employees, and the local economy. Employers can provide training specific to their needs, apprentices gain an opportunity to "earn and learn"—a critical factor for mid-career professionals—and local economies feel the effect of active and engaged residents in the community.

The **Barclays Foundation Apprenticeship Program** is an award-winning project that aims to place apprentices into skilled positions across a variety of disciplines around the world. The Barclays apprenticeship program originated in the United Kingdom in 2010 and is currently being rolled-out at Barclays facilities in India and the United States.

In the U.S., the program recently expanded to Henderson, Nevada and focuses specifically on entry-level talent from underserved communities. This apprenticeship program is designed to create a training and development avenue for those who would not otherwise have opportunities in an array of technology and operations fields. Located at Barclays' Henderson operations center, the company plans to hire 50 apprentices across its Customer Care, Fraud and Collections operations.

To fill these positions, Barclays partners with several local community-based organizations that have workforce development programs including Tech Impact, with whom Barclays has had a working relationship since 2016. Other partner organizations include Help of Southern Nevada, Nevada Partnership for Homeless Youth, the Clark County School District and the Nevada Department of Employment, Training and Rehabilitation.

The apprenticeships are permanent full time positions and come with a competitive pay package, including a generous benefits package such as health, dental and vision coverage, and a 401(k) retirement plan with matching corporate contributions.

The Barclays Connect with Work program is a global initiative with a goal to place 250,000 people into productive jobs by 2022.

This type of apprenticeship program would hit both marks—creating a training and development avenue for those looking to upskill in technology and operations and providing a hands-on learning opportunity so completers can naturally immerse into skilled-roles upon completion.

The **Apprenti model** is another apprenticeship model worth examining. Apprenti was developed by the Washington Technology Industry Association (WTIA) Workforce Institute—a non-profit spinoff of the WTIA focused on "address[ing] workforce shortages in the tech industry and identify[ing] diverse talent to meet industry needs."[5] Apprenti was sparked to create a tech talent pipeline, specifically for underrepresented groups like people of color, women and veterans, to feed the tech industry's insatiable need for talent.

In 2016, Apprenti won a $7.5 million grant from the U.S. Department of Labor to expand nationwide.[6] Just three years later, the organization has developed a licensing model that has been implemented in additional markets including Virginia, Massachusetts, Michigan, Utah, and several others.

The director of Massachusetts' Apprenti program, Lauren Jones, recently noted that local employers "appreciate the registered apprenticeship model, because it is a resource that combines both the technical training followed by on-the-job training, and for the employer, they should really be investing in their future talent by training them on the job with the goal of retaining them."[7]

For Delaware employers, apprenticeships could serve an essential role in filling the tech talent pipeline, particularly if employers can rethink hiring practices in terms of expanding a position's education requirements beyond a four-year degree. In a recent address to ITWorks graduates, Technical.ly's Chris Wink called on employers to do exactly that:

> "To you employers, I say this: if your job descriptions require a college degree, check again. Do those jobs need a college degree? Surgeon, yes.

Lawyer, yes. But software engineer? Product manager? Scrum master? System admin? Sales or marketing? Maybe not. Consider an apprenticeship program, or paid internships. Because those and many other knowledge worker jobs really just need the passionate ones, the humane ones, the curious ones."

The Intermediary Model

Closer to home, there's a newly-emerging technology public-private initiative called TechHire Delaware, aimed at training hundreds of software programmers for mid-level tech jobs with some of the state's largest employers. The program is currently being funded through America's Promise and the U.S. Department of Labor, and is designed to provide training in high-demand areas like cybersecurity, oracle database, Java, and other technical and IT-based tracks.

Tech Impact was recently brought in as the intermediary to Delaware Technical Community College—the primary recipient of the aforementioned grant—and the model sets up an interesting opportunity to scale the pipeline of middle-skilled job applications. Through Tech Hire Delaware, Tech Impact and DelTech are helping locate and recruit individuals who qualify for the grant and then help to match them with relevant training programs. The partnership also includes wraparound services like resume workshops, mock interviews, and other soft skills programs. Once finished, Tech Hire Delaware will also help to match graduates with employers.

According to Callihan, the goal is to connect with people interested in getting trained in technology—ideally those who are already in Delaware—catalogue them in a database, and align them with existing programs. Additionally, the platform can help determine employers' needs and identify gaps in training programs.

"We know employers are looking for skill sets in app development, cloud infrastructure, cybersecurity, and data analytics, but those are broad categories," Callihan said. "The next step, then, is developing a strategic plan to interface with employers to ensure workforce development and higher ed programs are aligned with their needs."

The Role of an Industry Council

As Callihan notes, none of this work happens without focus. "We need a leadership council that helps set the strategic plan, develop the programs, measure the results, and continually change as the environment does," he said. "Some of that might be policy, some might be programs, some might be investment. But the plan must come first."

Tech Hire Delaware's newly-formed IT Industry Council, developed through Delaware Pathways—a nonprofit focused on Career and Technical Education pathways for high school and post-secondary students—could be the right place to house such a strategic plan. The IT Industry Council will ultimately consist of a blend of local employers and industries, from financial and healthcare to logistics and agriculture. It's meant to be inclusive across the entire state and representative of all industries.

Paul Herdman, President/CEO at Rodel—an educational nonprofit that partners with Delaware Pathways—noted that the IT Industry Council is in a unique position to expand the state's tech talent pipeline.

Through his work with Delaware Pathways and America's Promise, Herdman has helped support several industry councils here. In addition, he and his team have traveled abroad to learn more about apprenticeships and pathways-based training in Switzerland and Germany. "We could create a more robust entity," he said.

"One of the things we are interested in is helping [Tech Hire Delaware] look at what's happening all over the country," and even across the globe, he added. In fact, in Switzerland, he said companies saw so much value in industry councils that they helped fund and staff them. "The industry leaders were really driving the train by co-designing the curriculum with educators," he said.

Students in the ITWorks program work in groups to solve real-world IT problems.

KEY THEMES AND RECOMMENDATIONS FOR ACTION

Through the development of this issue brief, several themes emerged as potential recommendations to help build and sustain a tech talent pipeline in Delaware, as well as one overarching recommendation. These recommendations are in line with CompTIA's (Computer Technology Industry Association) most recent Cyberstates report, which stated that "worker shortages in the tech industry have sparked many creative solutions"—and further illustrate how Delaware is not alone in its tech sector challenges.

> "The demand for tech talent routinely exceeds supply in many markets. Consequently, employers can no longer fall back on status quo approaches to developing, recruiting, and retaining talent. From rethinking screening criteria, such as eliminating the 4-year degree threshold, to further leveraging apprenticeships, partnerships, flexible training and work arrangements, and performance-based certifications, employers increasingly recognize the need for creative problem solving."
> *CompTIA Cyberstates Report 2019*

Among the key themes for consideration in scaling Delaware's tech talent pipeline:

Amplify Hands-on Training or Upskilling Programs Specific to Mid-Career Professionals

One way to meaningfully increase the tech talent pool is through investing in pipelines that support mid- to high-skill jobs. This could be done by creating new programs or adding more cohorts to existing training and certificate programs. It is essential for any new effort to be closely aligned with the business community to ensure talent needs are being filled. At the same time, it must also be nimble enough to evolve as industry needs change.

Formalize and Invest in a State-Supported Apprenticeship Program

As described in this issue brief, a program model like Apprenti could be implemented using its licensing structure, potentially through a to-be-determined technology industry association similar to the IT Industry Council. Similarly, lessons can be learned from the Georgia FinTech Academy, an online talent development platform that allows learners to access the specialized educational experiences necessary to enter the fintech sector regardless of where they live in the state or the college in which they enroll. Services of this public-private partnership model typically include talent curriculum, experiential learning, professional learning, and innovation-driven research.

Identify Solutions From Similar Markets, and Apply Lessons to Collective Recruitment and Retention Efforts in Delaware

Delaware can and should continue to invest in scaling programs like Open Bracket Delaware and it should consider conducting an in-depth comparative analysis of successful retention and/or recruitment strategies in other regions or countries. Solutions exist, as was made clear in nearly every interview, and Delaware should not feel alone in this process.

Invest and Scale the Intermediary Model

The intermediary model is providing early indications of success, and an open door into how Delaware could indeed protect and scale a mid- to high-level tech talent pipeline. "What's so powerful about the model is that it's not just hard skills training, or boot camp. It's providing the wraparound supports and power communications skills that help to foster the strongest pool of candidates," says Callihan.

The model, as outlined earlier in this plan is also the most direct and proven model for sustaining and scaling the exact jobs that Delaware employers need—for now and for the future.

Develop the infrastructure for a thriving, statewide IT Industry Association

"Our focus must remain on public-private partnerships that can provide training opportunities for mid-level career professionals, in high-demand areas like cybersecurity, oracle database, Java, and other technical and IT-based tracks," Callihan said. The intermediary model may be proving successful, but it will never scale without the coordinated efforts of an industry council.

The intermediary approach to workforce development requires an organization or structure to host and manage it, just as the Washington Technology Industry Association's Workforce Institute manages its intermediary model, including Apprenti.

Delaware should consider expanding Tech Hire Delaware's IT Industry Council into a statewide industry council to build and manage a comprehensive strategic plan that includes the following components:

- **Recruitment.** Essentially, this part of the strategic plan must address how to attract and retain raw talent—either from within Delaware or attracted from other areas—to the state's technology sector. In addition, it must look at scaling programs like Open Bracket Delaware and potentially needed policy changes to allow for the widest range of applicants in any available tech job. Part of the recruitment effort would also include marketing to reach potential additions to the talent pool and available training programs. In addition, the new model should conduct an in-depth comparative analysis of successful retention and/or recruitment strategies in other regions or countries.

- **Assessment.** The next part of the model is assessing those interested in tech careers and matching them to a training program. It includes maintaining a database of those who have shown interest and tracking how many end up in a program, and ultimately into a job.

- **Placement in training programs.** Those who are interested in taking the next step toward a tech career would then be placed into the programs that best fit their needs. The intermediary would also be responsible for staying up-to-date on available programs and curriculum, communicating with the state's tech employers, and ensuring the programs are keeping up with industry demands. For example, noting the clear need for mid- to high-skill tech applicants, the intermediary would be responsible for seeking to amplify hands-on training programs specific to those needs. This could be done by creating new programs or cohorts to existing training and certificate programs.

- **Employer placement.** After completing a training program, the intermediary would then help match qualified candidates with available positions within the state's tech industry. These could be direct placement positions or additional "earn and learn" opportunities like apprenticeships. The intermediary would also be tasked with formalizing state-supported apprenticeship programs, like Apprenti.

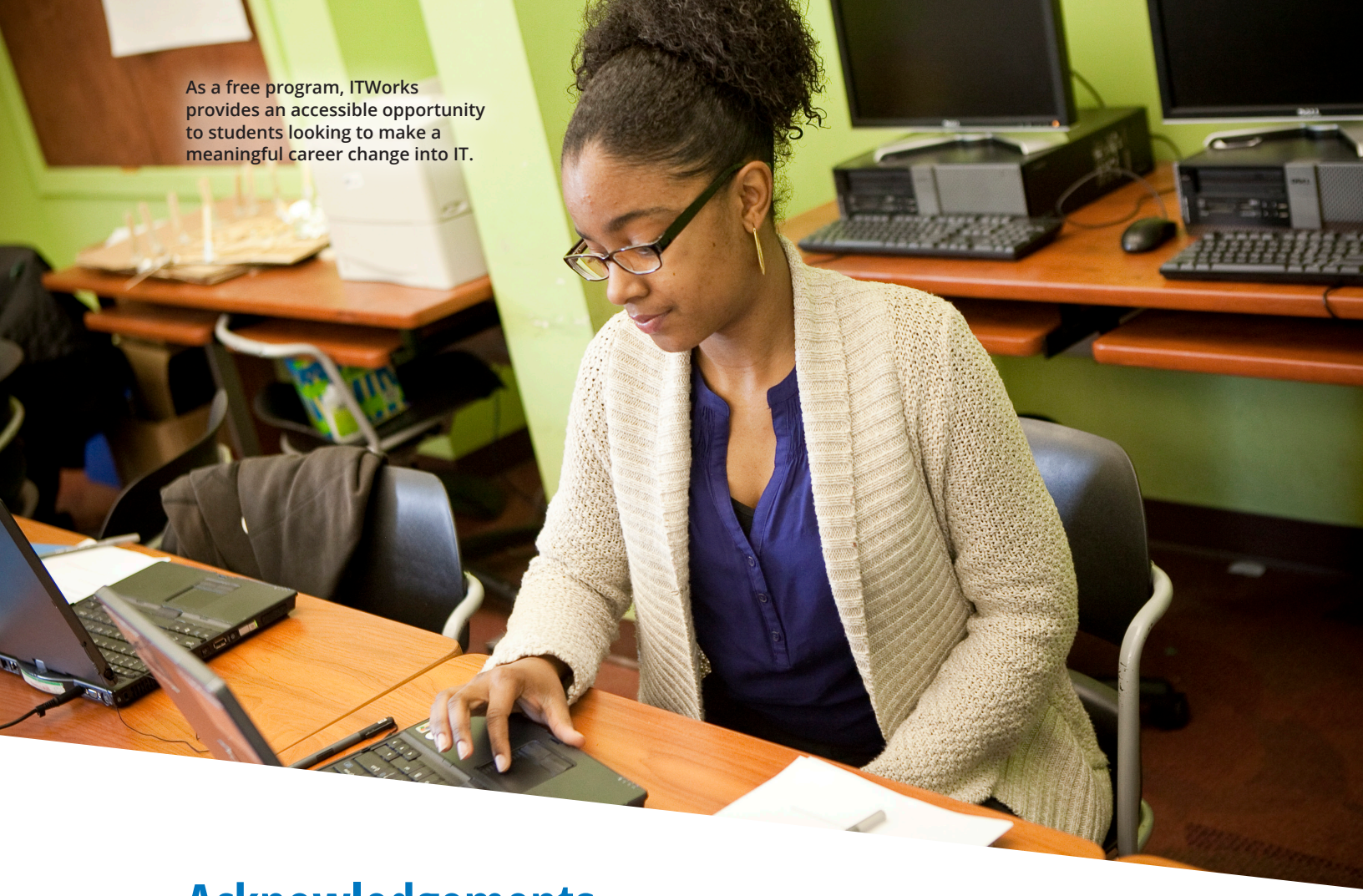
- **Soft skills programs.** The intermediary would also embrace wraparound services, like resume writing assistance, mock job interviews, and other soft skills workshops that help program graduates prepare for real-world experiences in the corporate world.

- **Measurement and evaluation.** No program or model of any kind would be complete without a plan for self or third-party assessment. The intermediary must include in its strategic plan a blueprint for continual improvement and customer service that ensures needs are being met on all levels. In addition, there must be a contingency plan that is nimble enough to easily make changes to curriculum or programs as needed to meet industry demands.

Conclusion

As the research supports, Delaware is in a unique moment of opportunity that, if embraced, can position the state, its business community, employers, students and residents for significant short- and long-term economic growth. By implementing a focused strategy which engages all stakeholders across the state, Delaware can grow its tech talent pipeline, build its economy, and prepare more residents for the jobs of both today and tomorrow.

ITWorks students take the technical skills they've gained from the classroom to gain real-world experience in local internships.



As a free program, ITWorks provides an accessible opportunity to students looking to make a meaningful career change into IT.

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Endnotes

1 "Delaware Economy at a Glance." Bureau of Labor Statistics., last modified September 20th, accessed September 23rd, 2019, https://www.bls.gov/eag/eag.de.htm.

2 Choksi et al., Delaware in a Fintech Future. June 2019. PDF. https://choosedelaware.com/wp-content/uploads/2019/06/Delaware-Fintech-Future-060519-web.pdf

3 Chip Cutter. 2019. "Amazon Prepares to Retrain A Third of its U.S. Workforce." Wall Street Journal, Jul 12,. https://www.wsj.com/articles/amazon-to-retrain-a-third-of-its-u-s-workforce-11562841120

4 Vuocolo, Alex. 2017. "5Q: Chris Wink of Technical.Ly Delaware" Delaware Business Times, October 31. https://www.delawarebusinesstimes.com/5q-chris-wink-technical-ly-delaware/.

5 Apprenti, "Who We Are," Apprenti. https://apprenticareers.org/about/who-we-are/

6 "WTIA Apprenti Program Awarded $7.5 M US Department of Labor Contract to Expand Registered Tech Apprenticeship Model Nationwide." 2016.PR Newswire, Sep 27,. https://www.prnewswire.com/news-releases/wtia-apprenti-program-awarded-75-m-us-department-of-labor-contract-to-expand-registered-tech-apprenticeship-model-nationwide-300334684.html

7 Walrath, Rowan. 2019. With First Massachusetts Cohort, Apprenti Aims to Fill the Tech Talent Gap: BOSTINNO. https://www.americaninno.com/boston/bostinno-bytes/with-first-massachusetts-cohort-apprenti-aims-to-fill-the-tech-talent-gap/

8 Cyberstates 2019: The Definitive Guide to the U.S. Tech Industry and Tech Workforce. 2019: The Computing Technology Industry Association (CompTIA). https://www.cyberstates.org/pdf/CompTIA_Cyberstates_2019.pdf

9 Economic Development and Employer Planning System. "Delaware: Labor Market Data for Career Pathway Planning", accessed September 23rd, 2019, https://www.edeps.org/CppDePathway.aspx?ccn=111.

Credits

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Due to the fast-paced nature of the ITWorks program, the students not only graduate with a well-rounded skillset for the IT field, but also friends from their cohorts. (Graduation Spring 2013)

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