Developing Delaware's IT Talent Pipeline Research Summary

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We thank the Delaware Department of Labor for funding this project and our partner, Tech Impact, for collaborating with us to perform the work. We also thank the following practitioners and thought leaders for contributing to this effort:

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- **Executive Overview**

- Why IT Talent Matters

- National Terrain of IT Talent Pipeline Intermediaries

- Recommendations for Developing an IT Talent Pipeline in Delaware

- Other Implementation Considerations

- Appendices

EXECUTIVE SUMMARY

Delaware faces an IT talent crisis. While the need for highly skilled IT and technology workers far outstrips the available supply, some Delawareans remain under- and/or unemployed. Addressing this issue is crucial to the state's economy, as winner-take-all tech hubs draw in talent from across the US and the world. Fortunately, Delaware has assets and initiatives underway that are addressing the problem.

To address the IT talent crisis, **many locales have begun to develop IT talent pipelines that understand root causes and build out solutions tailored to local employer needs.** These talent pipeline *intermediaries* are each unique but share common characteristics. For example, many intermediaries agree that talent solutions must address both *demand* and *supply* issues and set goals at the intersection of both. By mapping common characteristics of intermediaries, a taxonomy emerges that Delaware can use to understand, adopt, and adapt to meet its specific needs in building a local IT talent pipeline intermediary.

The IT Industry Council Executive Committee is ready to build Delaware's IT Talent Pipeline. It wants to replicate intermediary investments and programs seen in other locales but also has broader goals such as making Delaware an attractive location for IT talent and a "Tech Hub." Recommendations for building out the IT Talent Pipeline over the next 9-12 months are organized into a framework of three parts: 1) Complete the Strategic Plan for an Inclusive Tech Talent Pipeline; 2) Formalize the IT Industry Council; and 3) Implement the Plan and Set a Course for the Longer Term.

While implementation plans will depend upon decisions regarding the exact activities of the Industry Council, the structures and approaches gleaned from other intermediaries provide an initial road map for the next 9-12 months. During that time and beyond, the IT Industry Council will have to address additional issues such as what membership in the Council entails for employers, how it will be funded in the long term, and the governance model it will need. These issues are elaborated in the final section. *Other Implementation Considerations*.

The appendix includes additional data and information on IT apprenticeships.

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SUMMARY OF WHY IT TALENT MATTERS

- **Delaware, like the nation, faces an IT talent crisis.** The need for highly skilled IT and technology workers far outstrips the available supply. Delaware may be experiencing this shortage more acutely than other states and cities due to higher population and IT sector job growth compared to regional averages. The IT talent shortage is not a new problem but is it has been worsening due to a confluence of two factors: competition for IT talent is increasing while some IT talent is leaving Delaware.

- **Having a supply of IT talent has become a competitive advantage for cities, and states across the US, and in fact, around the world.** Conversely, locations that are not building IT talent pools are being passed over by companies looking to relocate, expand, or launch new businesses. Not having a robust IT Talent supply puts locations at risk of not being able to compete in the global economy.

- **Delaware is taking steps to grow its IT talent supply** and has assets to leverage, such as its location and size, that can help build and expand an IT talent pipeline. Partners across the public and private sectors have mobilized and are ready to address the problem.

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IT TALENT SHORTAGES ARE PLAGUING THE US
Companies are struggling to find skilled people to meet their needs.

- According to a national survey, 54% of organizations agreed that the digital skills gap is causing a shortage of digital talent and dampening innovation.

- Globally, the impact of the labor shortage could damage the United States the most, at a loss of $162.2 billion.

IT Talent Shortage Headlines, 2019

THOUGHT LEADERSHIP

America's got talent. So why is there a talent shortage?

Pauline Chiou, 1 year ago | 7 min read

Technology and the Talent Shortage

How staffing agencies are adapting to the supply and demand gap.

by Sarah Fister Gale   September 17, 2019

IT Talent Shortages: What Businesses are Doing to Cope

For organizations that are having trouble recruiting IT professionals with in-demand skills, some options have become available in the cloud and gig economy.

Arlington, Va., January 17, 2019

Gartner Survey Shows Global Talent Shortage Is Now the Top Emerging Risk Facing Organizations

Source: Lavelle, J. (2019). Gartner Survey Shows Global Talent Shortage Is Now the Top Emerging Risk Facing Organizations. Gartner. Chlou, P. (2018). America's got talent. So why is there a talent shortage? Hult International Business School. Froehlich, A. (2019). IT Talent Shortages: What Businesses are Doing to Cope Information Week. Digital Transformation Institute. (2019). The Digital Talent Gap.

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IT JOBS IN DELAWARE ARE GROWING

While there is a national shortage of IT talent, the tech industry in Delaware is growing faster than the region, forcing Delaware employers to raise wages to compete for talent in a limited talent pool.

- Delaware has a higher employment growth in the IT Sector than surrounding Mid-Atlantic States
- Average IT wages in Delaware are higher than national averages

	United States	Mid-Atlantic States	Delaware
Employment Change 2016-2026	551,600	75,990	1,628
Employment Growth 2016-2026	13.1%	11.6%	12.2%
Average Wage 2017	$89,576	$95,991	$92,568

Notes: Mid-Atlantic includes Delaware, District of Columbia, Maryland, New Jersey, Pennsylvania, and Virginia.
Source: Delaware Department of Labor and U.S. Department of Labor, Bureau of Labor Statistic
https://www.edeps.org/CppDeCluster.aspx
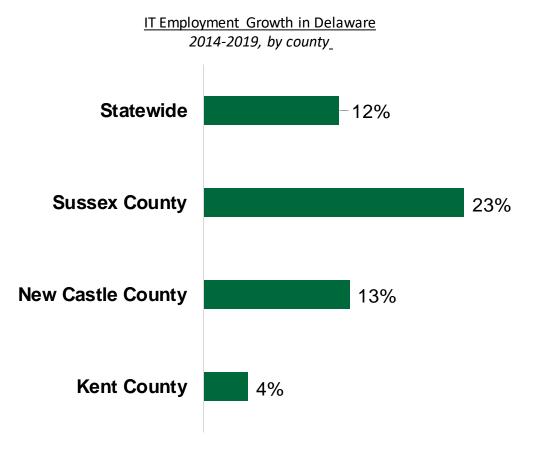
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IT EMPLOYMENT IS GROWING THROUGHOUT THE STATE

IT job growth and the shortage of talent is affecting Delaware statewide.

IT Employment Growth in Delaware
2014-2019, by county

County	Growth
Statewide	12%
Sussex County	23%
New Castle County	13%
Kent County	4%

- The **Finance and Insurance industry** added 1,151 IT workers over the last five years, mostly in New Castle County.
- The **Management of Companies and Enterprises** industry sector saw the fastest rate of growth (60%), adding 385 IT workers statewide, mostly in New Castle County.
- **Administrative and Support Services and Health Care and Social Assistance** together added nearly 200 IT workers to Delaware's economy over the last five years and were growth industries for IT workers in all three counties.
- The **Government sector, which includes federal, state and local government agencies,** added 92 IT workers in New Castle and Sussex Counties, but lost 37 workers in Kent County.
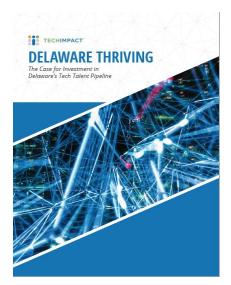
Overall, the IT workforce increased by 1,584 workers in New Castle County, 48 in Kent County and 172 in Sussex County, or by a total of 1,804 workers statewide, an increase of 12% over the last five years.

Source: Delaware Technical Community College Office of Research and Analytics. (2019). Information Technology Employment Overview

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TECH IMPACT REPORT HIGHLIGHTS SHORTAGE OF IT TALENT

Delaware employers report the need for talent and the struggle to find people to fill available positions.
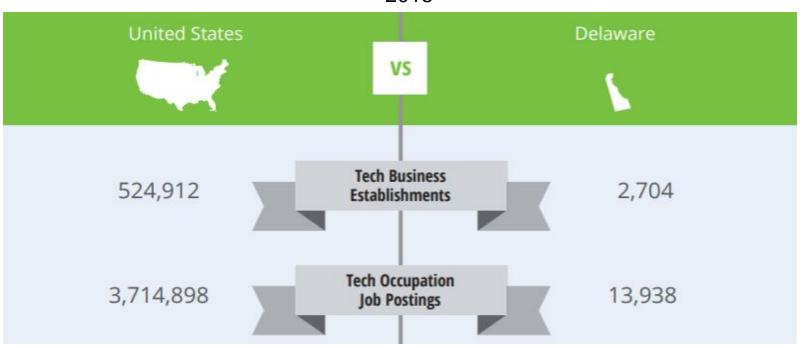
- Tech Impact researched the need for tech talent in Delaware and found that in 2018 the demand for IT made up a large portion of available jobs. Tech occupations comprised between 19% to 43% of available jobs at financial services firms.
- Employers are findings themselves at war over talent; driving up salaries to attract the limited talent that exists in the area and lacking strong candidates for positions available.

"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, MSChief Information Officer, Senior Vice President of Innovation and Strategic Development, Christiana Care

TECHIMPACT

DELAWARE THRIVING
The Case for Investment in Delaware's Tech Talent Pipeline

DELAWARE HAS A HIGH DEMAND FOR TECH EMPLOYMENT

The Tech Impact report highlights that there are still various jobs openings for tech in Delaware.

Job Openings and Tech Business Establishments
United States vs. Delaware
2018

United States	VS	Delaware
524,912	Tech Business Establishments	2,704
3,714,898	Tech Occupation Job Postings	13,938

Source: TechImpact. Delaware Thriving: The Case for Investment in Delaware's Tech Talent Pipeline

LARGE DELAWARE-BASED CORPORATIONS ARE STRUGGLING TO FIND TALENT

Large corporations are still in need of skilled IT workers in Delaware.

Employers in Delaware who have posted IT job opportunities 2019	
J.P. Morgan Chase Company	TD Bank
Best Buy	U.S. Bancorp
M&T Bank	Bank of America
Accenture	Capital One
Computer Aid Incorporated	Anthem Blue Cross
Citi	Computer Sciences Corporation
Siemens	Barclays
Agilent Technologies	Nemours Health System
E.I. DuPont de Nemours and Company	

Notes: Tables display employers in Delaware who posted job opportunities online over the last 12 months for middle - and high-skill IT jobs. In order to be listed above, the employers must have posted positions for Delaware companies. Nationwide placement companies advertising opportunities for unidentified employers were excluded.
Source: Delaware Technical Community College Office of Research and Analytics. (2019). Information Technology Employment Overview

THE PROBLEM MAY BE SO LARGE THAT EMPLOYERS ARE ALREADY LOOKING ELSEWHERE

The relocation of more than 500 Barclays positions from Delaware to other locations was a wake-up call to many Delaware policy makers.

IT job listings in Delaware saw a 4% drop in FY2018, while surrounding markets saw increases of 20% to 40%.

With very low unemployment and increasing competition to hire talent, this may suggest employers have begun recruiting from and even relocating to neighboring areas.

DELAWARE BUSINESS NOW!
NEWS NOW. NOT LATER.

Home › Delaware › Barclays plans to cut 500 jobs in Delaware as it moves...

Delaware | News | Finance | Fintech | New Castle County | Wilmington

Barclays plans to cut 500 jobs in Delaware as it moves positions to New Jersey

By **Delaware Business Now** - June 5, 2019
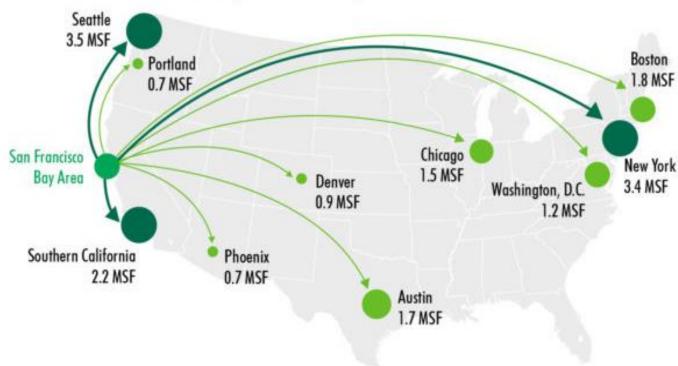
Source: Source: Barker. (2019). What Barclays moving 500 tech workers to New Jersey means for Delaware. Delawareonline. https://www.edeps.org/CppDeCluster.aspx. Quinn, Holly. Technical.ly Delaware. Delaware tech jobs by the numbers: How small is the pond?

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EMPLOYERS ARE MOVING TO CITIES WITH EXISTING IT TALENT

As tech hubs emerge, they are a source of competitive advantage. The high-tech industry has accounted for about 20% of major office-leasing activity in the U.S. since 2018 as tech companies grow nationally. Even when employers are pushed from high-cost tech hubs (like San Francisco) they are most likely to move to places with existing talent hubs.

Top 10 Expansion Markets for San Francisco Bay Area-Based Tech Firms:
18 Million Sq. Ft. of Office Space Leased in Past Five Years

Seattle 3.5 MSF
Portland 0.7 MSF
San Francisco Bay Area
Southern California 2.2 MSF
Phoenix 0.7 MSF
Denver 0.9 MSF
Chicago 1.5 MSF
Austin 1.7 MSF
Washington, D.C. 1.2 MSF
Boston 1.8 MSF
New York 3.4 MSF

Source: CRBE, "2019 Scoring Tech Talent Report."

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THE NEED FOR TECH TALENT IS NOT AN IT INDUSTRY-ONLY NEED

Banking, financial services, pharmaceuticals, and health care are just some of the industries looking for skilled IT workers.

Industries with the Largest Gain in Software Jobs, US
2012-2017

Industry	2012	2017	Change
Retail	6.4%	13.9%	+7.5%
Banking & Financial Services	2.4%	4.4%	+2.0%
Manufacturing	4.5%	6.1%	+1.7%
Information Technology	7.2%	8.8%	+1.6%
Internet & Tech	5.0%	6.0%	+1.0%
Consulting	2.8%	3.4%	+0.6%
Biotech & Pharmaceuticals	1.4%	1.8%	+0.4%

Source: Glassdoor Economic Research

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DELAWARE HAS MANY ASSETS IN PLACE TO BUILD AN IT TALENT PIPELINE

Delaware already has many initiatives in place and a strong foundation to start from.

Delaware's Existing and Emerging IT Talent Development Assets

➢ Emerging tech hub in Wilmington

➢ Aligned, committed private sector

➢ Strong public-private partnerships (such as DPP, DBREC, Vision Coalition, etc.)

➢ Exemplars in place, particularly Zip Code

➢ Growing number of IT Pathways for high school and community college students

➢ Delaware's unique advantages (small size, easy to convene stakeholders, etc.)

➢ Strong higher education partnerships (UD, DelTech, DSU)

Source: https://www.theatlantic.com/sponsored/jpmc-2018/are-these-cities-americas-new-tech-hubs/1820/

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NORTHERN DELAWARE IS PART OF THE 8TH LARGEST METRO AREA IN THE US

Northern New Castle County has the advantage of being part of one of the largest metro areas in the US.

2017 Rank	Metropolitan Area	2017 Population	2017 GDP
1	New York-Newark-Jersey City, NY-NJ-PA	20,320,876	1,717,712
2	Los Angeles-Long Beach-Anaheim, CA	13,353,907	1,043,735
3	Chicago-Naperville-Elgin, IL-IN-WI	9,533,040	679,699
4	Dallas-Fort Worth-Arlington, TX	7,399,662	535,499
5	Houston-The Woodlands-Sugar Land, TX	6,892,427	529,990
6	Washington-Arlington-Alexandria, DC-VA-MD-WV	6,216,589	500,701
7	Miami-Fort Lauderdale-West Palm Beach, FL	6,158,824	490,074
8	**Philadelphia-Camden-Wilmington, PA-NJ-DE-MD**	**6,096,120**	**444,975**
9	Atlanta-Sandy Springs-Roswell, GA	5,884,736	438,684
10	Boston-Cambridge-Newton, MA-NH	4,836,531	385,542

Source: US Census Bureau, 2018
"Regional Data - GDP & Personal Income". *Bureau of Economic Analysis*. July 5, 2017.

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DELAWARE IS GROWING ITS OWN IT TALENT PIPELINE

Starting as early as high school, there is an existing pipeline for both workers and employers to leverage.

Secondary

- Delaware Pathways
    - Computer Science
    - Networking

Approximately 500 students participating

Post-secondary

- Del Tech
- Delaware State University
- University of Delaware

UD has 100 students graduates/year capacity

DSU pipeline growing to 60-70 incoming class with increasing retention rate

Alternative programs

- Zip Code
- Tech Impact IT Works

93% of graduates of Zip Code placed in paid roles with 6 months of graduation

Source: Delaware Department of Education. (2018). Delaware Pathways. Zip Code Wilmington. (2019).

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SUMMARY OF NATIONAL TERRAIN OF IT TALENT PIPELINE INTERMEDIARIES

- To address the IT talent crisis, many locales have launched initiatives to understand root causes and build out solutions tailored to local employer needs. **These talent pipeline *intermediaries* are each unique but share common characteristics.** They *intermediate* between business, government, and education; are driven by employer needs; and are "action oriented." Many address IT as well as other sectors using a common approach and platform.

- Many **intermediaries agree that talent solutions must address both *demand* and *supply* issues and set goals at the intersection of both.** That said, there is a common philosophy that the work begins by deeply understanding the needs of employers. Several intermediaries are implicitly *demand-driven but supply-focused* meaning that they are grounded in filling jobs that employers need but have a mission to tap and develop new pools of talent to meet these needs, often targeting groups that have had historically higher rates of under- or unemployment.

- **By mapping common characteristics of intermediaries, a taxonomy emerges that facilitates understanding how they compare and contrast.** This is helpful in understanding the practices that other locales have taken and the options that Delaware could assess and adopt to meet its specific needs.

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WHAT IS AN INTERMEDIARY IN THE IT TALENT PIPELINE SPACE?

Intermediaries bring together business, government, and education to address IT talent pipeline challenges.

Although each intermediary is unique, common activities are:

- **Convene** the entities in order to deeply understand each groups' perspective
- Are **driven by the needs of employers**
- **Translate** between parties who often do not speak each others' language
- **Understand, own, and overcome gaps** and cut through complexity
- **Establish** programs needed to address problems

IT Business Sector
Companies who Hire IT Talent

IT Talent Management Intermediary

Government
Local, State, Federal

Education
Higher Ed and K12

Participating employers are not only IT companies. The intermediary addresses the need for IT talent, regardless of the industry (e.g. a software engineers in healthcare, in high-tech start-ups, or in financial services).

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INTERMEDIARY WORK FALLS INTO TWO REALMS, SUPPLY AND DEMAND

IT talent solutions emerge at the intersection of demand and supply. However, many intermediaries begin by deeply analyzing and understanding employer needs (the demand) to target job market needs.

Demand Workstreams

- Convening employers and facilitating employer-driven, high value discussions
- Building understanding across employers that they have a shared problem and can resolve it together
- Helping employers define their specific talent needs especially specific capabilities, traits, skills, and masteries
- Collecting, analyzing, and visualizing data
- Helping employers identify and classify existing talent sources
- Synthesizing findings to identify specific gaps and needs
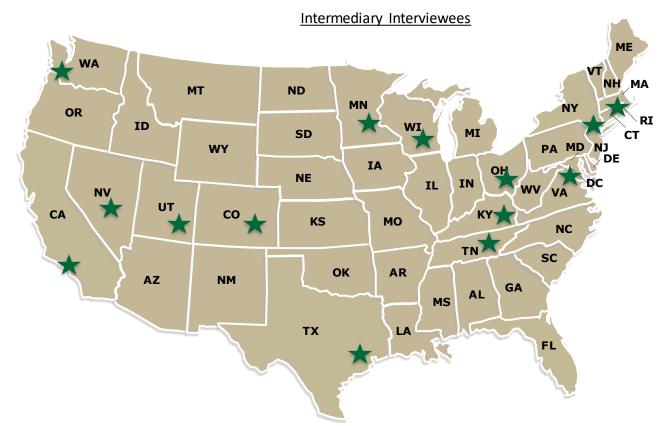
Supply Workstreams

- Convening educators and non-traditional IT talent providers (boot camps, coding schools, etc.) to convey employer needs
- Creating and investing in programs and interventions to build new supplies of IT talent (apprenticeship programs, certifications, etc.)
- Identifying and developing talent supply pools, particularly those that may not be fully defined or tapped (veterans, women, etc.) in partnership with policy-makers
- Putting infrastructure in place that makes supply more transparent and accessible (e.g. searchable data bases of recruiters and programs)

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THIS ANALYSIS IS BASED ON INTERVIEWS WITH 13 INTERMEDIARY ORGANIZATIONS AND MANY RELATED ENTITIES (SEE INTERVIEW LIST IN APPENDIX)

Many states and cities are putting intermediaries in place. The analysis attempted to understand a diverse array of approaches across geographies. Interviews were supplemented with secondary research and looking at international models. This is not an exhaustive list of existing intermediaries.

Intermediary Interviewees

- Upskill Houston
- NYC Tech Talent Pipeline
- Northern Virginia Technology Council/NOVA Works
- Kentucky Chamber Workforce Center
- Minnesota Pipeline Program
- Skills for Rhode Island
- Tennessee Pathways Intermediary
- Careerwise Colorado
- Talent Ready Utah
- LA Tech Talent Pipeline
- Washington Technology Industry Association
- Nevada Talent Pipeline/Governor's Office of Workforce Innovation (OWINN)
- Pathways Wisconsin

INTERMEDIARY CHARACTERISTIC MATRIX (1 of 2)

	Upskill Houston	NYC Tech Talent Pipeline	Northern Virginia Technology Council/NOVA Works	Kentucky Chamber Workforce Center	Minnesota Pipeline Program	Skills for Rhode Island	Tennessee Pathways Intermediary	Careerwise Colorado
Governance/ Structure	Chamber of Commerce	Mayoral Initiative, in Small Business Services	Chamber of Commerce, now it is its own organization	Kentucky Chamber Workforce Center	Department of Labor	Independent 501c3, initially started by the Governor	Department of Education and Community Colleges	501c3
Funding model	Private	Private	Private	Public and private funding	Public	Public	Public	Private
Methodology /Approach	US Chamber of Commerce Talent Management Pipeline	Developed own	US Chamber of Commerce Talent Management Pipeline	US Chamber of Commerce	Developed own, Competency model and dual training	Used Chicago model initially and then developed own	Developed own	Developed own
Only IT or IT and other sectors	IT and other sectors	Only IT (other sectors have dedicated teams within the agency and they share center admin and legal)	Only IT (Known for its partnership with employers)	IT and other sectors (Healthcare, Construction, Manufacturing)	IT and other sectors	IT and other sectors	IT and other sectors	IT and other sectors
Staff	4	11	1.5	7	2	36	12	N/A

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	Talent Ready Utah	LA Tech Talent Pipeline	Washington Technology Industry Association	Nevada Talent Pipeline/OWINN	Pathways Wisconsin
Governance/ Structure	Department of Economic Development	Chamber of Commerce and state partnership	Industry Association	Office of Workforce Innovation	Department of Public Instruction
Funding model	Public	Private and public	Public and private	State funding and grants	Public and private
Methodology / approach	Developed own	Developed own	Developed Apprenti and other programs	Developed own	Developed own
Only IT or IT and other sectors	IT and others	IT and healthcare	IT	IT and 7 Other Sectors	IT and other sectors
Number of Staff	4	4.5	Over 15	11	N/A

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TAXONOMY OF INTERMEDIARY MODELS

Intermediaries often evolved based on who began addressing the problem first—they evolved organically driven by the owners who had the incentives and resources to create solutions. Several dominant models are emerging and a taxonomy is helpful in comparing and contrasting various approaches.

Model	Employer	Government	Nonprofit	Education
Organizer of the Intermediary	• Chamber of Commerce • Industry Association	• Workforce Dev. Board • Economic Dev. Agency • Dept of Labor	• Social entrepreneur • Spin-out from industry or chamber of commerce	• Community College • Dept. of Ed
Example Intermediary	• Upskill Houston • Kentucky Talent Pipeline • SEMI	• NYC Tech Talent Pipeline • Nevada (OWINN)	• Skills RI • Careerwise Colorado	• Pathways Intermediary, TN • NOVA Workforce
Rationale for the Approach	• Efforts must be demand-led and employer focused, best if they own/lead it • Existing trust and buy-in of employers • Often already acts as an intermediary between industry and others	• Existing funding (e.g. WIOA) • Many gov't initiatives already require employer engagement (e.g. Workforce boards) • Can work well if unfettered from bureaucracy (e.g. entity within Gov.'s office). • Public policy focus	• Supports a pure mission focus including social, not only economic, outcomes. • Provides independence from the entities it services (employers, gov't, education) • Putting a funding model in place is a central concern	• Existing funding (e.g. Perkins, etc.) • Natural home for supply-side activities • Some community colleges have vibrant employer relationships • Must overcome potentially negative employer perceptions
Common Pipeline Methodologies Employed by the Model	Many using US Chamber's Talent Pipeline Management approach	Leverages existing structures and organic approaches	Propriety models now being "franchised" or replicated	Education-led certifications and apprenticeship programs

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COMMON ELEMENTS OF WHAT MAKES AN INTERMEDIARY SUCCESSFUL

Research on intermediary effectiveness is not yet available. But those who report strong employer engagement and/or success in growing pipelines, reported common capabilities.

Employer Centered

- Starting with demand issues and having deep employer engagement
- Having the stature, relationships and respect to convene employers
- Demonstrating value to employers at each step in the process and each meeting

Communications and Data

- Being able to ask for, collect, and analyze specific capabilities for specific roles that employers need to fill
- Translating and communicating between the employers, local government, and educators; ensure than the employer focus did not alienate government or educators

Concentrated Focus

- Selecting a few high-impact roles within IT, not all roles, to work at in a given period
- Localizing the work-- state-level entities all reported having made investments in regional supports to understand employers in local labor markets

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Background: Rhode Island suffered very high unemployment during the recession of 2008-9 and recovered more slowly that other states. The Governor decided to replicate a successful workforce development program from Chicago. Rhode Island tailored the approach to replace their aging workforce and build talent pipelines at earlier ages.

What They Do: Skills for RI (SRI) emerged as a nonprofit with the aim of engaging industry sectors and job seekers. SRI is explicitly *demand -driven and supply -focused,* meaning that it starts from the needs of employers and uses a design-thinking model to address talent pipeline issues but then focuses on barriers to employment for populations who have been mostly excluded from the job market in the past. Industry-sector partnerships allow them to think through talent needs and build programs to help tap into new talent pools. SRI works in sectors other than IT, including financial services and healthcare. The organization is looking to expand to other states.

Lessons for Delaware
- Governance – SRI was initially driven by the governor but incubated by a public-private partnership in a chamber of commerce. It eventually became a stand-along 501(c)(3) nonprofit. This might work for Delaware, as well.
- Approach – SRI's *demand-driven and supply -focused* recognizes that public policy goals addressing under- and unemployment can only be achieved by first understanding employer needs.
- Preparing for the Future - SRI is already identifying IT roles that will soon become obsolete (such as helpdesk staff) and working with employers on how to retrain and redeploy these employers in advance.
- Complexity – SRI's process is very complex but that is what employers need. They source vendors to provide training, recruit people, secure the dollars, create candidate pipeline, perform community outreach, develop a marketing strategy, and essentially "take the guess work out" for employers.

CASE IN POINT: HOUSTON – EMPLOYER MODEL

Background: The Greater Houston Partnership (Houston's equivalent of a region chamber of commerce) was driven to address talent pipeline issues when the petrochemical industry could not find qualified people to fill its positions. Their focus is on the talent pool of people in the middle skill space, those who do not have 4-year degrees, but could be trained and certified to work in petrochemicals and now, other industries as well.

What They Did: The Chamber developed a task force of business leaders, school districts, higher education representatives, and community-based organizations to look at existing best practices (approaches that were already working) in Houston. As a result they decided to launch UpSkill Houston to help grow and develop a talent pipeline for the industry. Upskill Houston looked at how to attract talent, the role of the chamber and public policy on the federal and state levels. UpSkill Houston decided to adopt the Talent Pipeline Management methodology created by the US Chamber of Commerce Foundation. Now about two years into the project, Upskill Houston is an ongoing initiative of the Houston Partnership and has expanded its work into seven more industries including Advanced Manufacturing, Healthcare, and Construction.

Lessons for Delaware
- Governance - UpSkill began and continues to be organized within the Houston Partnership but eventually became an initiative with its own brand. Delaware could take a similar approach if it would like to have a level of autonomy but not start a new entity.
- Methodology - UpSkill is a significant user of the Talent Pipeline Management Initiative and has a strong relationship with the US Chamber of Commerce Foundation. This methodology has been applied successfully to several industries is used by many of the intermediaries interviewed for this today. Delaware could assess this methodology to help fast-track its work.
- Scope - UpSkill focuses on middle skills talent pipelines, not jobs that typically require four-year degree. This raises a question for Delaware on the scope of the solution it would want to pursue.

CASE IN POINT: KENTUCKY – MIXED APPROACH

Background: Like many states, the 2009 recession hit Kentucky hard and permanently shifted many sectors of the economy. As it recovered, employers complained that they struggled to find qualified people to fill open positions. The president of the Kentucky Chamber of Commerce decided to begin to address the issue in 2017, focusing on four main industries, including IT. Through the Chamber they opened the Kentucky Chamber Workforce Center. As various discussions with Kentucky state officials advanced, the state agreed to publicly support this initiative. Kentucky decided to implement state-wide change using the Talent Management Pipeline Initiative strategy through the US Chamber of Commerce Foundation.

What They Do: The Kentucky Chamber toured the state to visit local leaders to gain their support. During this roadshow they held an application process for local facilitators or 'Champions' who support the chamber in convening employers and working with education and non-profit partners. Kentucky conducted the Talent Pipeline Management Initiative three-day, six-part training in Kentucky for over 40 volunteer facilitators. Project Managers support the facilitators in conducting the work with employers throughout the state.

Lessons for Delaware
- Statewide Coverage - While the effort was started by the Chamber, Kentucky eventually brought in state support to receive further funding and implement a statewide approach with localized efforts.
- Supplemental, Not Supplanting - Kentucky made sure to get community, local and regional support before launching the training. Through community facilitators, they were able to utilize existing assets and partners that vary from community to community.
- Resourcing - Instead of staffing an entire office, the team utilized volunteer support which they trained in Kentucky instead of attending the US Chambers Talent Pipeline Management Academy in Washington, DC. If Delaware wants to pursue the Talent Pipeline Management methodology, it would seek out similar flexible ways to do so.

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Given the sensitive nature of the material, the following draft content is redacted to protect the confidentiality of the IT Industry Council:
- *Organizational chart*
- *Funding*
- *Timeline*

The Rodel Team is available to discuss these recommendations upon request.

FOR MORE INFORMATION

Please Contact:

Paul Herdman, President & CEO, Rodel

Wilmington, DE

pherdman@rodelde.org

(302) 504-5246

Website: www.rodelde.org

- Executive Overview

- Why IT Talent Matters

- National Terrain of IT Talent Pipeline Intermediaries

- Recommendations for Developing an IT Talent Pipeline in Delaware

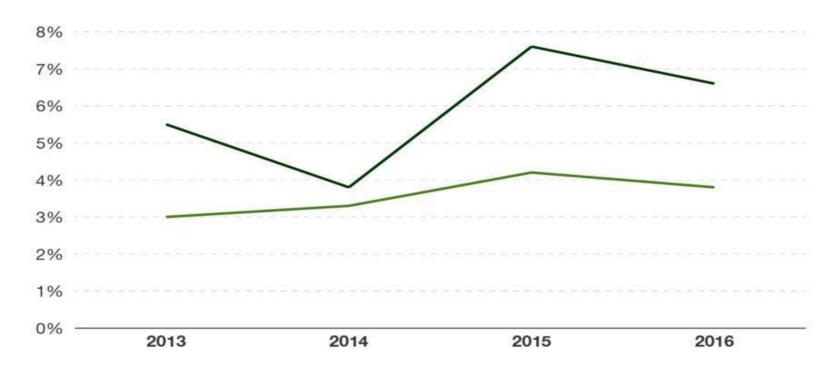- Other Implementation Considerations

- **Appendices**

IT TALENT SHORTAGES ARE PLAGUING THE US

Companies are struggling to find skilled people to meet their needs

Growth of tech jobs versus tech graduates

■ Tech degree/diploma growth rate
■ Tech job growth rate

Source: BLS 2017 Occupational Employment Survey

SMALLER AREAS ARE ALSO GROWING THEIR TECH SECTORS

Tech hubs in smaller metro areas are also emerging and growing talent

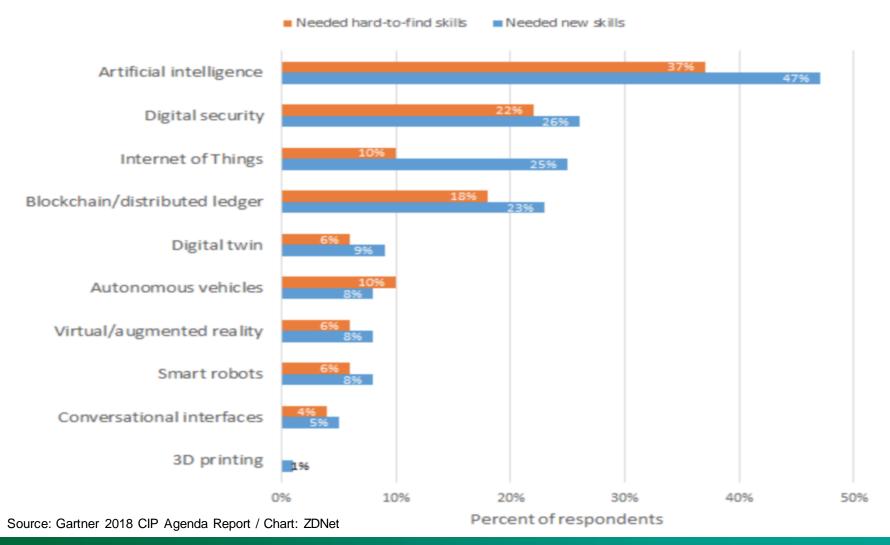## Highest share of local job postings in tech, metros 250,000–1,000,000 people

Metro	Tech share of all postings	Hot title share of tech postings	Similar of job mix to Bay Area
Huntsville, AL	17.8%	2%	47%
Boulder, CO	10.9%	12%	71%
Trenton, NJ	8.8%	14%	60%
Colorado Springs, CO	8.4%	4%	50%
Palm Bay-Melbourne-Titusville, FL	7.1%	3%	51%
Provo-Orem, UT	7.1%	11%	65%
Santa Maria-Santa Barbara, CA	6.6%	6%	60%
Fayetteville-Springdale-Rogers, AR-MO	6.1%	9%	61%
Ann Arbor, MI	6.0%	9%	66%
Durham-Chapel Hill, NC	5.8%	11%	57%

Source: Indeed. Jed Kolko

Rodel A GREAT EDUCATION CHANGES EVERYTHING

IT TALENT IS IN NEED ACROSS ALL IT JOBS

Impact of technologies on the IT department

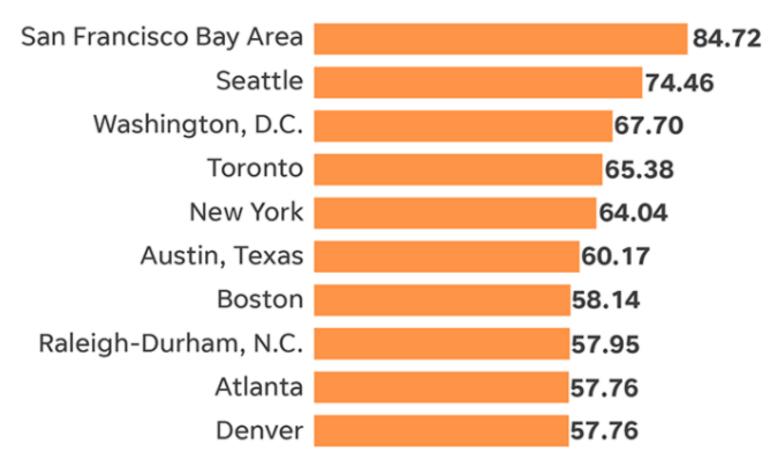■ Needed hard-to-find skills   ■ Needed new skills

Source: Gartner 2018 CIP Agenda Report / Chart: ZDNet

"WINNER TAKES ALL" CITIES WITH TECH HUBS CONTINUE TO ATTRACT TALENT

Top 10 Markets of Tech Talent Professionals

City	Score
San Francisco Bay Area	84.72
Seattle	74.46
Washington, D.C.	67.70
Toronto	65.38
New York	64.04
Austin, Texas	60.17
Boston	58.14
Raleigh-Durham, N.C.	57.95
Atlanta	57.76
Denver	57.76

Source: CRBE Research, "2018 Scoring Tech Talent." George Petras, USA Today

TECH HUBS ARE GROWING AND MORE HUBS EMERGING

The demand for talent continues to grow

Source: CRBE Research, "2018 Scoring Tech Talent."

IT APPRENTICESHIP JOBS FROM SELECTED PROGRAMS

It is difficult to match jobs across programs and geographies. This table includes lists of IT apprenticeships and IT training courses from programs researched during the project.

Apprenti (National)	CareerWise Colorado	Eleven Fifty (Indianapolis)	Skills for Rhode Island	UpSkill Houston
• Network Security Administrator • Web Developer • Software Developer • IT Business Analyst • Windows System Administrator • Linux System Administrator • Cloud Support Specialist 1 and 2 • Data Center Technician	• Applications Software Developer • Systems Software Developer • Network & Computer Systems Administrator • Database Administrator • IT Support Technician • Junior Coder • Quality Assurance Technician • Web Developer	• Web Developer • Junior Designer • Front End Developer • Junior Developer • Junior Software Developer • JavaScript Developer • Data Analyst • QA Tester • Software Integration Specialist	• Business Analyst • Senior Software Engineer	• Business Software, • Cloud Computing • Big Data • ICS Cybersecurity • Cardtronics Finance • Computer Hardware • Geophysical Oil and Gas Software • Amazon Web Services • ERP Alert Logic Cybersecurity • Cloud Security • Employee Benefits Software • Billing Software • Analytics Oracle Cloud Architecture • Microsoft Technology Solutions • Construction Industry Software

TALENTED PEOPLE ARE LEAVING DELAWARE

Contributing to the shortage is the challenge that talented workers are leaving Delaware for a better job market.

Delaware ranks as the third mostly likely state that highly skilled workers are likely to *leave*.

While not exclusively IT, it is likely that these skilled workers could be filling open IT positions.

	States Where Highly Educated Workers In Their 30's Were More Likely To Leave For Other States April 2019
1	Vermont
2	South Dakota
3	**Delaware**
4	Wisconsin
5	New Hampshire
6	Ohio
7	Michigan
8	Pennsylvania
9	Indiana
10	South Carolina

Source: US Congress Joint Economic Committee