

## IT & Cybersecurity Sector

### Sector Strategy Update: June 2024

Prepared by Computing for All (CFA)

Please describe the greatest workforce needs facing your sector, with a focus on needs that career connected learning strategies can help to address.

The following are the greatest workforce needs facing our sector:

#### **Employers are looking for experience and soft skills**

Employers ask for entry-level jobs but most entry-level jobs require 1-3 years of experience, which students coming out of college degree programs don't have. It is important to build in experiences that offer students opportunities for work-based learning such as capstone projects, hands-on project work, Career Launch internships, and apprenticeships. These are very important for our strategy.

Employers also ask for soft skills such as collaboration, problem-solving, communication, etc. Many employers have told us that these are more valuable than tech skills, which they can teach. These are important as most tech jobs require you to work in teams and collaborate with others. Students can be trained in these skills via the work-based experiences mentioned above. For example, in the Full Stack Development Pre-apprenticeship program, all students get to work in project teams to build out their websites around the 17 UN sustainability goals and get to present their projects at the end of each quarter. This helps them build the skills necessary to collaborate in a team as well as problem solving and critical thinking skills, all of which are essential for students to improve their employability and to apply in an entry-level job.

#### **Lack of a diverse talent pipeline**

According to the [Tech Report](#), the statistics for diversity in the tech sector in 2021 included:

Women hold only 26.7% of tech employment. White Americans hold 62.5% of the positions in the US tech sector. Asian Americans account for 20% of jobs, Latinx Americans 8%, and Black Americans 7%. In comparison to other industries, the high-tech sector employs more men (**64% against 52%**), Asian Americans (14% compared to 5.8%), and white people (68.5% versus 63.5%). The high-tech sector employs fewer Black Americans (**7.4% versus 14.4%**), Latinx Americans (8% vs. 13.9%), and women (36% versus 48%) than in other sectors.

There is a lack of mentors and representation for diverse candidates, which leads to underrepresentation in the tech sector. As technology increasingly pervades different facets of our lives, it is important to bring diverse voices to the table so that tools and services are designed with different viewpoints and can address diverse needs.

**Huge gap in employer demand for projected annual openings in computer occupations vs. annual completers of bachelor's and graduate degrees in these fields**

Figure 18: Computer and Information Technology - Bachelor's and Graduate Level Annual Job Openings Compared to Certificate and Degree Completions 2023-2033



Source: Lightcast Q4 2023 Data Set; ESD; Integrated Postsecondary Education Data System (IPEDS)

*Additional Source:* The [HELM](#) Report, WA State, 2023

WA state has added bachelor's programs to community and technical colleges, thanks to Governor Inslee signing bill 5401 in 2021 that allows these colleges to offer bachelor's degrees in computer science. These programs increase educational pathways, particularly for professional and technical associate graduates, people of color, older working adults, and those with family responsibilities. With the recent bill, 14 out of 34 community and technical colleges in our state now offer a bachelor's degree in information technology: Application Development, Computer Science, Cybersecurity and Information Technology. However, this still leaves a significant gap to fill employer demand.

#### **Lack of access to programs in rural areas**

Students in rural parts of WA state are being left behind. Rural schools are small with small class sizes and don't often have resources to offer CTE programs. There is a severe shortage of teachers to teach Information Technology courses in rural areas, let alone developed areas. Programs like TEALs that are volunteer-led help to fill the need somewhat but often are unable to find volunteers in rural areas.

#### **Lack of trained teachers**

There is a severe shortage of teachers to teach Information Technology courses. Teachers are often lured away by well-paying jobs in the private sector.

#### **Significant demand for Tech roles in non-tech industry: Healthcare, Finance, Manufacturing etc. and Public Sector.**

Data shows that over 60% of tech roles are outside the tech sector.

#### **Emerging technologies**

We need to continually assess the impact of emerging technologies like AI on tech roles and how that will impact the career pathways.

**Between now and June of 2025, what are your sector's 3-6 occupations that are highest-priority for building supportive career connected learning pathways? Please focus on occupations that lead to economic self-sufficiency.**

- **Computer User Support Specialist/Cloud Support Engineer:** Assist computer users and organizations. They either maintain computer networks or provide technical help directly to computer users.
- **Data Center Technician:** A Data Center Technician is a Network and Computer

Systems Administrator who specializes in Data Center operations such as installing, maintaining, troubleshooting, and repairing a data center's computer and network systems including all hardware, and software.

- **Software Developer:** Create computer applications that allow users to do specific tasks and the underlying systems that run the devices or control networks.
- **Cyber / Information Security Engineer:** Responsible for designing and developing systems to protect company and customer data from hackers or any cyber-attacks.
- **Data Analyst:** A data analyst collects data, organizes, and uses it to reach meaningful conclusions. They are responsible for digesting the data and creating a report to explain the findings to help identify inefficiencies and other business problems that may exist.

For each of the occupations identified above, please provide the information below to help inform pathway development efforts and investments.

|  |   |
|--|---|
| <b>Occupation:</b> <a href="#">Computer User Support Specialist/Cloud Support Technician</a>   | <b>Sub-sector:</b>  |
| <b>Average wage:</b> <a href="#">\$66,430</a><br><i>Source: ONET</i>   |   |
| <b>Which skills/competencies do employers use as a benchmark to hire someone in this occupation?</b><br><b>Computer User Support Specialist:</b> <ul style="list-style-type: none"> <li>● Hardware installation and configuration</li> <li>● Troubleshooting and repair computers</li> <li>● Setup, configure and secure networks</li> <li>● Automation tools and scripting</li> <li>● Customer service and communication skills</li> <li>● Problem solving skills</li> <li>● Teamwork skills</li> </ul> | <b>Which credentials do employers cite as a valuable benchmark to hire someone in this occupation?</b> <ul style="list-style-type: none"> <li>● CompTIA A+, ITF+, Network+</li> <li>● AWS Certified Cloud Practitioner, AWS Solutions Architect</li> <li>● Microsoft Azure Fundamentals</li> <li>● Google Associate Cloud Engineer</li> </ul> |
| <b>Please describe possible career progression opportunities for this occupation:</b><br><br>Computer User Support Specialist->Computer Network Support Specialists->Network and Computer Systems Administrators   |   |
| <b>Please share the data, employer feedback, and/or Regional Network feedback that helped you identify this as a high-priority occupation:</b><br><br>Computer User Support Specialist is one of the more accessible pathways in IT for entry level  |   |

roles.

Projected growth rate for this occupation in WA state is [28% between 2020-2030](#).

The [US Bureau of Labor Statistics \(BLS\)](#) forecasts that cloud computing employment opportunities will grow by 15 percent in the ten years between 2021 and 2031. This impressive growth is driven by factors such as businesses' rising cloud migration rate and the increasing demand for more effective and efficient methods for storing, managing, and analyzing data.

Wenatchee School District developed a Computer Tech 1 Youth Apprenticeship in for IT Support starting in 2018.

The Southwest Regional Network plans to scale CFA's Computer and Software Technician (CAST) curriculum as a pathway to students in the ESD112 Rural CTE Cooperative (WJI grant).

WABS, the King and Pierce Regional Network, would like to expand the CAST Career Launch program across 13 partner school districts in the region (WJI grant).

CFA is working with the [Business Higher Ed Forum \(BHEF\)](#) to create a Workforce Partnership Initiative between community colleges and business in WA state. As part of their work, they researched and gathered labor market data for tech roles across the 9 CCW regions in WA state.

*Demand for Computer Support Specialists in Puget Sound region (King & Pierce) and Southwest WA (BHEF):*

### Top Companies Hiring and Top Job Titles for Entry – Level Technology Talent in Puget Sound Region Washington

|                           |     |
|---------------------------|-----|
| Amazon                    | 517 |
| SpaceX                    | 240 |
| Microsoft                 | 239 |
| University of Washington  | 215 |
| Costco                    | 171 |
| Meta                      | 158 |
| Tiktok                    | 152 |
| Blue Origin               | 151 |
| Google                    | 129 |
| Boeing                    | 124 |
| T-Mobile US               | 95  |
| Paccar                    | 82  |
| Apple                     | 76  |
| Harborview Medical Center | 75  |
| Deloitte                  | 73  |

Software Developer / Engineer

**2,307**

Job Postings (Past 12 Months)

Computer Support Specialist

**1,043**

Job Postings (Past 12 Months)

Computer Systems Engineer

**500**

Job Postings (Past 12 Months)

## Top Companies Hiring and Top Job Titles for Entry – Level Technology Talent in Southwest Washington

|                                    |    |
|------------------------------------|----|
| Humana                             | 58 |
| PeaceHealth                        | 36 |
| Fisher Investments                 | 24 |
| United States Department of Energy | 16 |
| HP                                 | 15 |
| Bonneville Power Administration    | 13 |
| Clark College                      | 11 |
| Papa Murphy's                      | 9  |
| ZoomInfo Technologies              | 8  |
| Iq Credit Union                    | 7  |
| Intel                              | 7  |
| Hp Development                     | 6  |
| The Vancouver Clinic               | 6  |
| Verosa, Llc.                       | 6  |
| Fisher Asset Management            | 6  |

### Computer Support Specialist

**137**

Job Postings (Past 12 Months)

### Software Developer / Engineer

**64**

Job Postings (Past 12 Months)

### Systems Analyst

**40**

Job Postings (Past 12 Months)

3/22/2024

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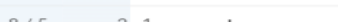
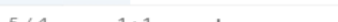
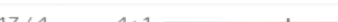

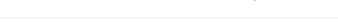



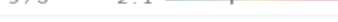
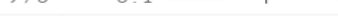
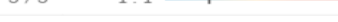
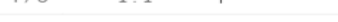

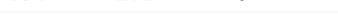
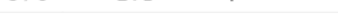
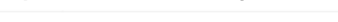
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Source: Lightcast

Seattle King County WDC presented the following job posting analytics for Computer User Support Specialists from Sept-Oct 2023 using Lightcast data:

- Median advertised wage is \$58,400
- 47 percent of jobs listed no minimum educational requirements
- 22 percent of posted jobs listed high school diploma as the minimum educational requirement
- 52 percent of the job postings listed a minimum experience requirement of 1 year or less
- Top listed qualifications were CompTIA A+ and CompTIA Network+
- Top hiring cities: Seattle, Bellevue, Redmond, Kent
- Top Employers hiring for this role:

Top Companies Posting

| Company                                | Total/Unique (Sep 2023 - Oct 2023) | Posting Intensity  | Median Postin, Duration |
|--|------------------------------------|--|-------------------------|
| Robert Half                            | 10 / 8                             | 1 : 1    | 8 day                   |
| Best Buy                               | 16 / 7                             | 2 : 1    | 23 day                  |
| University of Washington               | 27 / 5                             | 5 : 1    | n/                      |
| The Pokemon Company International      | 15 / 5                             | 3 : 1    | 5 day                   |
| Randstad                               | 8 / 5                              | 2 : 1    | 3 day                   |
| Amazon                                 | 5 / 4                              | 1 : 1    | 20 day                  |
| Geopaq Logic                           | 17 / 4                             | 4 : 1    | 21 day                  |
| Excell, A Division Of Compucom Systems | 10 / 4                             | 3 : 1    | 8 day                   |
| Accenture                              | 7 / 4                              | 2 : 1    | n/                      |
| Harbor Foodservice                     | 11 / 4                             | 3 : 1    | 16 day                  |
| Henry Schein                           | 5 / 3                              | 2 : 1    | n/                      |
| Dynamic Partners                       | 5 / 3                              | 2 : 1    | n/                      |
| Edmonds College                        | 9 / 3                              | 3 : 1    | 46 day                  |
| TEKsystems                             | 3 / 3                              | 1 : 1    | 13 day                  |
| Kustom Agency                          | 4 / 3                              | 1 : 1    | n/                      |
| Harborview Medical Center              | 5 / 3                              | 2 : 1    | 12 day                  |
| SpaceX                                 | 6 / 3                              | 2 : 1    | 3 day                   |
| State of Washington                    | 5 / 3                              | 2 : 1    | n/                      |
| Tacoma Public Schools                  | 6 / 3                              | 2 : 1  | 14 day                  |
| BCforward                              | 12 / 3                             | 4 : 1  | 24 day                  |

Source: Lightcast

**For each region below, which workforce education & training programs are effectively meeting employer needs, or could effectively meet their needs with adjustment or expanded capacity?**

|                | Career Explore | Career Prep | Career Launch<br>Apprenticeship across WA state (Apprenti) | Post-Secondary/Training Program<br><a href="#">Link to IT certificates and degrees across the state</a> (select Information Technology from Select Category) |
|----------------|----------------|-------------|--|--|
| <b>Capital</b> |                |             |  |  |
| <b>East</b>    |                |             |  |  |

|                          |  |  |   |  |
|--------------------------|--|--|---|--|
| <b>King &amp; Pierce</b> |  |  | <p>CFA Youth Apprenticeship (in development)</p> <p>Cloud Computing Career Launch (Bellevue College, Bates Technical College, Cascadia College, Renton Technical College)</p> | <p>Per Scholas<br/>Year Up<br/>Vets2Tech</p>   |
| <b>Mid-Columbia</b>      |  |  | <p>Cloud Computing Career Launch (Columbia Basin College)</p>   | <p>IT Support Technician AAS, Computer and Information Technology Certificate (Columbia Basin)</p> |
| <b>North Central</b>     |  |  | <p>Computer Tech 1 Youth Apprenticeship (Wenatchee School District)</p> <p>NCESD Career Launch Computer Technician Certificate (Wenatchee Valley)</p>                         | <p>NCESD Career Launch Computer Technician Certificate (Wenatchee Valley)</p>                      |
| <b>Northwest</b>         |  |  | <p>Cloud Computing Career Launch (Skagit Valley College, Whatcom Community College)</p>   | <p>Information Technology ATA and AAS degrees (Everett)</p>  |
| <b>South Central</b>     |  |  | <p>CAST IT Support Career Launch (West Valley School District,</p>  |  |

|            |  |  |   |  |
|------------|--|--|---|--|
|            |  |  | Yakima Skills Center)                     |  |
| Southwest  |  |  | Computer Support Specialist (AAT) (Clark) |  |
| West Sound |  |  |   |  |

**Between now and June of 2025, where is there regional momentum to support pathway development in this occupation?**

For each region listed, please describe:

1. Key **momentum factors** (e.g., interested employers, high-priority for Regional Network, opportunity to improve equitable access, opportunity to scale existing programs, portions of CCW pathway already built)
2. **High-potential opportunities** to support pathway development
3. Is supporting those high-potential opportunities a **shared priority** across SL and RN?

**King/Pierce RN**

1. High priority for RN
2. Opportunity to scale existing programs (CAST)
  - a. CCW pathway (CAST) is already built
3. Opportunity to improve equitable access
4. Supporting this work is a shared priority across SL and RN

**Southwest RN**

1. High priority for RN
2. Opportunity to scale existing programs (CAST)
  - a. CCW pathway (CAST) is already built
3. Opportunity to improve equitable access by developing and delivering programs to rural school districts
4. Supporting this work is a shared priority across SL and RN.

**Northwest**

- Active employer demand for IT programs and interest in expansion (Everett Community College).

**East**

- Burgeoning technology, entrepreneurship, and start-up community with increased social and industry participation. Spokane CC and Spokane Falls colleges offering a wide range of certificate, associates and bachelors IT programs.

|   |  |
|---|--|
| <b>Occupation:</b> Data Center Technician   | <b>Sub-sector:</b>   |
| <b>Average wage:</b> <a href="#">\$66,430</a> (Average wage for Computer User Support Specialists in WA state)<br><i>Source: ONET</i> |  |
| <b>Which skills/competencies do employers use as a benchmark to hire someone in this occupation?</b>                                  | <b>Which credentials do employers cite as a valuable benchmark to hire someone in this occupation?</b> |



|   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Hardware installation, and configuration</li> <li>• Troubleshooting and repair computers</li> <li>• Setup, configure and secure networks</li> <li>• Automation tools and scripting</li> <li>• Customer service and communication skills</li> <li>• Problem solving skills</li> <li>• Teamwork skills</li> </ul>  | <ul style="list-style-type: none"> <li>• CompTIA A+, ITF+, Server+, Network+</li> <li>• Cisco Certified Network Associate (CCNA)</li> <li>• Cisco Certified Technician (CCT) Data Center</li> </ul> |
| <p><b>Please describe possible career progression opportunities for this occupation:</b></p> <p>Technician-&gt;Technician Support Specialist-&gt;Systems Administrator/Information Technology Manager</p>   |   |
| <p><b>Please share the data, employer feedback, and/or Regional Network feedback that helped you identify this as a high-priority occupation:</b></p> <p>The North Central Regional Network approached Computing for All (CFA) in 2021 to build a Data Center Technician pathway program in Grant County. A Data Center Technician is a Network and Computer Systems Administrator who specializes in Data Center operations such as installing, maintaining, troubleshooting, and repairing a data center's computer and network systems including all hardware, and software.</p> <p>North Central Washington is attracting major investments from technology-oriented firms such as Microsoft and other companies in their pursuit to launch new data centers regionally. Affordable, reliable hydropower and a robust build-out of high-quality broadband internet access have attracted several different types of business investments. Data centers perform a key role in today's cloud-based internet, storing vast amounts of data at key locations across the country. North Central not only can provide high-speed connections to the internet and inexpensive hydropower and alternative energy to run these centers, but also boasts vast tracts of developable commercial property. <i>Source: <a href="#">DRAFT-PLAN-FOR-PUBLIC-COMMENT-2.29.2024.pdf (skillsource.org)</a></i></p> <p>Employers such as NTT, Sabey, Microsoft, and Vantage are building data centers in Grant County and need qualified entry-level IT professionals. The program will provide a needed pathway to Big Bend Community College's IT Systems Administration AAS &amp; AAS-T/Certificate/Cisco Networking Certificate, and training for rural students to find employment.</p> <p>In addition, there are non-tech employers such as Stemilt Growers (agriculture employers) who are hiring for Network/Systems Administrator and related tech roles:</p> <p><i>Demand for Network/Systems Administrators and Computer Support Specialists in North Central WA (BHEF):</i></p> |   |

### Top Companies Hiring and Top Job Titles for Entry – Level Technology Talent in North Central Washington

|                                   |     |
|-----------------------------------|-----|
| Chinchiolo Stemilt                | 110 |
| Microsoft                         | 15  |
| NTT DATA                          | 8   |
| Wenatchee School District         | 4   |
| Stemilt Growers                   | 4   |
| Macy's                            | 3   |
| Samaritan Healthcare              | 3   |
| Grant Pud                         | 3   |
| The Boston Consulting Group (BCG) | 2   |
| Bonneville Power Administration   | 2   |
| Comtech Pst                       | 2   |
| Elevance Health                   | 2   |
| Link Transit                      | 2   |
| Capgemini                         | 2   |
| Big Bend Community College        | 2   |

Network / Systems Administrator

**118**  
Job Postings (Past 12 Months)

Computer Support Specialist

**21**  
Job Postings (Past 12 Months)

Database Administrator

**14**  
Job Postings (Past 12 Months)

3/18/2024

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\*Source: Lightcast

This occupation will continue to be an important investment for the North Central RN over the next couple of years (WJI grant).

**For each region below, which workforce education & training programs are effectively meeting employer needs, or could effectively meet their needs with adjustment or expanded capacity?**

|               | Career Explore | Career Prep | Career Launch | Post-Secondary<br><a href="#">Link to IT certificates and degrees across the state</a> (select Information Technology from Select Category) |
|---------------|----------------|-------------|---------------|---|
| Capital       |                |             |               |   |
| East          |                |             |               |   |
| King & Pierce |                |             |               |   |
| Mid-Columbia  |                |             |               |   |

|               |  |  |  |   |
|---------------|--|--|--|---|
| North Central |  |  | Data Center Technician Career Launch program (Quincy SD, Wenatchee SD) | Systems Administration AAS/Certificate (Big Bend) |
| Northwest     |  |  |  |   |
| South Central |  |  |  |   |
| Southwest     |  |  |  |   |
| West Sound    |  |  |  |   |

**Between now and June of 2025, where is there regional momentum to support pathway development in this occupation?**

For each region listed, please describe:

4. Key **momentum factors** (e.g., interested employers, high-priority for Regional Network, opportunity to improve equitable access, opportunity to scale existing programs, portions of CCW pathway already built)
5. **High-potential opportunities** to support pathway development
6. Is supporting those high-potential opportunities a **shared priority** across SL and RN?

**North Central Region**

1. Key momentum factors:
  - Interested employers:
    - Tech sector employers building data centers due to affordable hydropower and high-quality broadband internet access. Employers include Microsoft, Sabey, NTT, Vantage.
    - Adoption of new technologies across industries including agriculture, manufacturing, healthcare. Employers include Stemilt Growers and Lamb Weston.
  - High priority for Regional Network
  - Opportunity to improve equitable access by targeting rural and dispersed populations.
  - Opportunity to scale existing programs: Data Center Technician Career Launch to other school districts in the region to meet employer demand.
2. Supporting this work is a shared priority across SL and RN

|  |   |
|--|---|
| <b>Occupation:</b> <a href="#">Software Developer</a>          | <b>Sub-sector:</b> Full Stack Developer |
| <b>Average wage:</b> <a href="#">\$151,930</a><br>Source: ONET |   |

|  |   |
|--|---|
| <p><b>Which skills/competencies do employers use as a benchmark to hire someone in this occupation?</b></p> <ul style="list-style-type: none"> <li>● <b>Programming Languages:</b> Familiarity with languages such as <b>JavaScript, Python, Java,</b> or <b>Ruby</b> is essential.</li> <li>● <b>Front-End Development:</b> Understanding of <b>HTML, CSS,</b> and <b>JavaScript</b> for building user interfaces.</li> <li>● <b>Back-End Development:</b> Proficiency in server-side technologies like <b>Node.js, Ruby on Rails,</b> or <b>Django.</b></li> <li>● <b>Databases:</b> Knowledge of databases (e.g., <b>SQL, NoSQL</b>).</li> <li>● <b>Version Control:</b> Experience with tools like <b>Git.</b></li> <li>● <b>APIs:</b> Understanding of how to work with <b>RESTful APIs.</b></li> <li>● <b>Problem-Solving:</b> Ability to troubleshoot and debug code.</li> <li>● <b>Agile Methodology:</b> Familiarity with <b>Agile</b> practices and collaboration.</li> </ul>                                  | <p><b>Which credentials do employers cite as a valuable benchmark to hire someone in this occupation?</b></p> <ul style="list-style-type: none"> <li>● Bachelor's degree</li> <li>● Bootcamps</li> <li>● Real-world project experience</li> </ul> |
| <p><b>Please describe possible career progression opportunities for this occupation:</b></p> <p>Software Developer-&gt;Mid to Senior-level Developer-&gt;Technical Lead-&gt;Team Manager-&gt;Technical Architect-&gt;Chief Technology Officer</p>  |   |
| <p><b>Please share the data, employer feedback, and/or Regional Network feedback that helped you identify this as a high-priority occupation:</b></p> <p>This occupation is among the fastest growing of all tech occupations in WA state. Projected growth rate for this occupation in WA state is <a href="#">37% between 2020-2030</a>.</p> <p>Edmonds School District, Edmonds College, WABS (King and Pierce County RN) and T-Mobile developed the T-Mobile Explorer Prep Career Launch Full Stack Developer program to meet the growing demand for software developers in our state.</p> <p>WABS plans to expand the T-Mobile Explorer Prep Career Launch model in Full Stack Development to 13 partner School Districts (WJI grant), enrolling 100 students across multiple school districts by 2026 by expanding the Explorer Prep and CFA CAST programs.</p> <p>CFA's Full Stack Software Development Pre-Apprenticeship program has three times the demand over capacity serving King and Pierce counties.</p> |   |

Southwest Region approached CFA in February 2024 to offer CFA's Pre-Apprenticeship to improve access by offering the program virtually to rural students in their region. OSPI frameworks are being developed for the program in order to offer it in the fall to 6-7 school districts in the Southwest region.

Mentors in Tech (MinT) is building a Career Prep program with materials and SME panels to prepare CTC BAS students for additional equitable and accessible pathways in related but equally well-paying tech roles that their students are not aware of, but many are qualified for and would be excellent candidates. This program is in partnership with MinT 9 partner CTCs. Please see below for the roles and their demand on LinkedIn in WA state (these are approximate number of open full-time positions matching the following position keywords), as well as total compensation data from glassdoor.com 0-1 year of experience, Seattle location:

- Support Engineer (8,200, \$84,650)
- Site Reliability Engineer (3,700, \$145,059)
- Sales Engineer (1,400, \$136,957)
- Project Manager (1,700, \$94,067)
- Product / Program Manager (1,800, \$140,190)
- Data / Business Analyst (8,700, \$84,093)
- DevOps (1,100, \$142,015)
- System / Database Administrator (7,900, \$69,601)
- User Experience Designer (300, \$126,536)
- Technical Writer (60, \$85,814)
- Software Test Engineer (500, \$104,606)
- Technical Account Manager (300, \$133,164)

MinT employer partners include GitHub, Flutter, MotorQ, chartedsails, MediaPipe, Swhoon and more.

*Demand for Software Developers in Puget Sound region (King & Pierce) and Southwest WA (BHEF)*

### Top Companies Hiring and Top Job Titles for Entry – Level Technology Talent in Puget Sound Region Washington

|                           |     |
|---------------------------|-----|
| Amazon                    | 517 |
| SpaceX                    | 240 |
| Microsoft                 | 239 |
| University of Washington  | 215 |
| Costco                    | 171 |
| Meta                      | 158 |
| Tiktok                    | 152 |
| Blue Origin               | 151 |
| Google                    | 129 |
| Boeing                    | 124 |
| T-Mobile US               | 95  |
| Paccar                    | 82  |
| Apple                     | 76  |
| Harborview Medical Center | 75  |
| Deloitte                  | 73  |

Software Developer / Engineer

**2,307**

Job Postings (Past 12 Months)

Computer Support Specialist

**1,043**

Job Postings (Past 12 Months)

Computer Systems Engineer

**500**

Job Postings (Past 12 Months)

3/22/2024

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Source: Lightcast

**For each region below, which workforce education & training programs are effectively meeting employer needs, or could effectively meet their needs with adjustment or expanded capacity?**

|                | Career Explore | Career Prep   | Career Launch                             | Post-Secondary/Training Program   |
|----------------|----------------|---|---|---|
|                |                |   | Apprenticeship across WA state (Apprenti) | <a href="#">Link to Software Development certificates and degrees across the state</a> (select Software Development from Select Category) |
| <b>Capital</b> |                | MinT Career Prep for CTC BAS students to prepare them for well-paying tech roles that students are not aware of (Centralia) |   |   |

|                          |  |   |  |   |
|--------------------------|--|---|--|---|
| <b>East</b>              |  |   |  |   |
| <b>King &amp; Pierce</b> |  | <p>CFA Full Stack Development Pre-Apprenticeship (Virtual)</p> <p>MinT Career Prep for CTC BAS students to prepare them for well-paying tech roles that students are not aware of (Bellevue, Green River, Lake WA Tech, North Seattle, Renton Tech)</p> | <p>T-Mobile/Edmonds College Full Stack Developer Career Launch (Edmonds School District/Edmonds College/Seattle Colleges)</p> <p>BAS in IT-Software Development (Green River College/MinT)</p> | <p>Edmonds /Seattle Colleges</p> <p>BAS in IT-Software Development (Green River /MinT)</p> <p>Per Scholas</p> <p>Skillspire</p> <p>Year Up</p> <p>Ada Developers Academy</p> <p>Vets2Tech</p> |
| <b>Mid-Columbia</b>      |  |   |  |   |
| <b>North Central</b>     |  |   |  |   |
| <b>Northwest</b>         |  | <p>MinT Career Prep for CTC BAS students to prepare them for well-paying tech roles that students are not aware of (Cascadia, Edmonds, Skagit Valley)</p>   |  | <p>AAS Software Development (Whatcom)</p>   |
| <b>South Central</b>     |  |   |  |   |
| <b>Southwest</b>         |  | <p>CFA Pre-Apprenticeship in Software Development (in progress)</p>   |  |   |
| <b>West Sound</b>        |  |   |  |   |

**Between now and June of 2025, where is there regional momentum to support pathway development in this occupation?**

For each region listed, please describe:

7. Key **momentum factors** (e.g., interested employers, high-priority for Regional Network, opportunity to improve equitable access, opportunity to scale existing programs, portions of CCW pathway already built)
8. **High-potential opportunities** to support pathway development
9. Is supporting those high-potential opportunities a **shared priority** across SL and RN?

- **King & Pierce**

- Job demand outlook for Software Developers. Projected growth rate for this occupation in WA state is [37% between 2020-2030](#). The highest demand in WA state is in King & Pierce (80%).
- 2. High priority for RN
- 3. Opportunity to scale existing programs
- 4. Shared priority for SL and RN

- **Southwest**

1. Opportunity to improve equitable access by offering CFA PAP virtually to rural school districts
2. Opportunity to scale existing programs based on CFA PAP – currently building OSPI frameworks for the program
3. High priority for RN
4. Shared priority for SL and RN

- **King & Pierce, Northwest and Capital**

Job demand outlook in WA state for additional related roles served by MinT Career Prep program:

- a. Sales Engineer: [23% between 2022-2032](#)
- b. Database Administrators: [25% between 2022-2032](#)
- c. Software Quality Assurance Analysts and Testers: [37% between 2020-2030](#)
- d. Web Developers and Digital Interface Designers: [39% between 2020-2030](#)

- **Mid-Columbia**

1. Job demand for software developers and IT support technicians in the region.
2. RN is interested in opportunity to improve equitable access by exploring collaboration with Southwest region to offer CFA PAP virtually to rural school districts

|   |   |
|---|---|
| <p><b>Occupation:</b> <a href="#">Cybersecurity/Information Security Engineer</a></p>                       | <p><b>Sub-sector:</b></p>   |
| <p><b>Average wage:</b> <a href="#">\$105,120</a><br/>Source: ONET</p>                                      |   |
| <p><b>Which skills/competencies do employers use as a benchmark to hire someone in this occupation?</b></p> | <p><b>Which credentials do employers cite as a valuable benchmark to hire someone in this occupation?</b></p> |

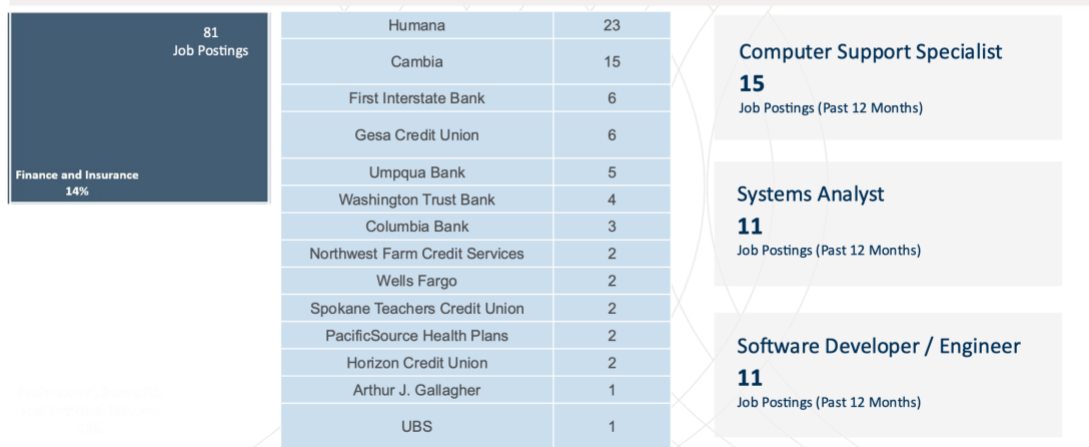


|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>● Proficiency in IT, cybersecurity, and computer networking</li> <li>● Expertise in identifying and responding to security threats</li> <li>● Knowledge of data privacy laws and regulations</li> <li>● Proficiency in networks and databases</li> <li>● Communication, collaboration, analytical and problem-solving skills</li> <li>● Business acumen and security awareness</li> <li>● Knowledge of security tools and frameworks, such as firewalls, SIEM, application security, and security architecture</li> <li>● Cybersecurity Frameworks and Standards (e.g., NIST, ISO 27001)</li> <li>● Network Security and Firewalls</li> <li>● Incident Response and Threat Hunting</li> <li>● Security Compliance and Auditing</li> <li>● Programming and Scripting (e.g., Python, PowerShell)</li> </ul>   | <ul style="list-style-type: none"> <li>● Bachelor's degree</li> <li>● Work experience</li> <li>● CompTIA Security+</li> <li>● Certified information Systems Security Professional (CISSP)</li> </ul> |
| <p><b>Please describe possible career progression opportunities for this occupation:</b></p> <p>Cybersecurity/Information Security Engineer-&gt;Cybersecurity Analyst-&gt;Cybersecurity Manager/Architect</p>  |  |
| <p><b>Please share the data, employer feedback, and/or Regional Network feedback that helped you identify this as a high-priority occupation:</b></p> <p>Cybersecurity Specialists can anticipate and avoid cyber threats, protect an organization's valuable data assets, and can gather, analyze, and present evidence of security breaches and incidents due to cyber terrorists or other intruders.</p> <p>This occupation is among the fastest growing of tech occupations in WA state. Projected growth rate for this occupation in WA state is <a href="#">30% between 2020-2030</a>.</p> <p>WABS, the RN for King and Pierce County, plans to scale the T-Mobile Explorer Prep Career Launch model in Full Stack Development to Cybersecurity Specialists pathway.</p> <p>CFA and Finance SL, WA Bankers Association (Duncan Taylor) discussed the need for specific IT skills in the Finance sector. Based on data from <i>Lightcast</i>, the Northeast, South Central and Southwest regions have high demand for entry-level IT roles in finance and insurance companies. CFA and Finance SL co-developed a pilot program to recruit candidates with cybersecurity and cloud skills for placement with finance and banking</p> |  |

employers. Candidates were screened and recruited by CFA, enrolled in a 16 hour *Understanding Banking Fundamentals* course offered by WBA, and interviewed by a team of WBA leads to prepare for interviews and placement with finance and banking employers. See below for top finance and insurance companies hiring for IT roles in the Northeast region:

*Demand for IT roles in Finance and Insurance sector (BHEF):*

**Top Finance and Insurance Companies Hiring for Entry – Level Technology Talent in Northeast Washington and Top Occupations**



3/22/2024 \*Source: Lightcast

BUSINESS-HIGHER EDUCATION FORUM | WWW.BHEF.COM | ©BHEF

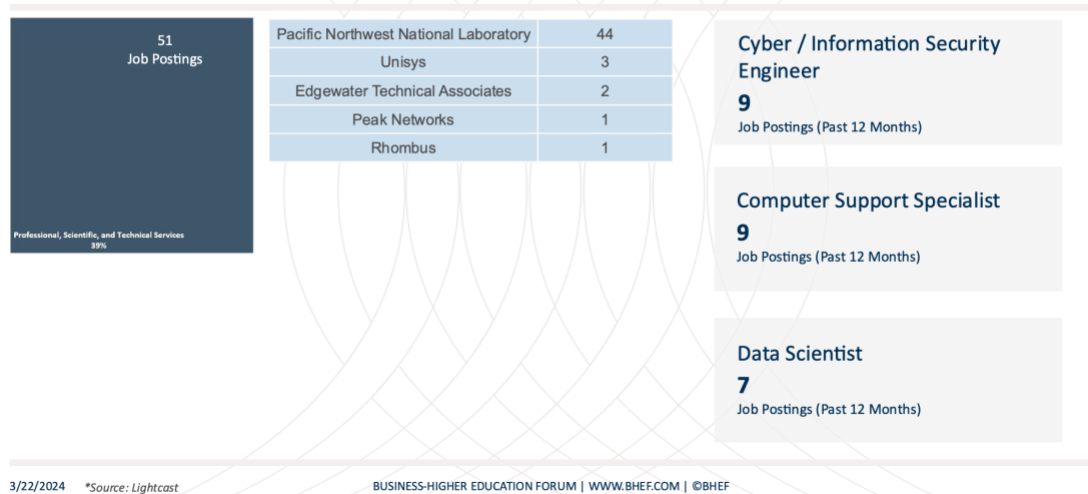
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Source: Lightcast

Columbia Basin College and Pasco School District’s Career Connect Tech program which includes an AAS in Cyber Security prepares students for positions such as Cyber Security Specialists and Technicians, Cybercrime Analysts, and Incident Analysts/Responders. Students who wish to continue with their postsecondary education can enroll in CBC’s BAS in Cyber Security program, which prepares them for positions such as Information Security Analysts, Cyber Security Consultants, and Cyber Security Engineers.

*Demand for Information Security Analysts in the Mid-Columbia (Southeast) WA below (BHEF):*

## Top Professional, Scientific, and Technical Services Companies Hiring for Entry – Level Technology Talent in Southeast Washington and Top Occupations



Source: Lightcast

Seattle King County WDC presented the following job posting analytics for Information Security Analysts from Sept-Oct 2023 using Lightcast data:

- 180 unique postings
- Median advertised wage is 160,500 dollars
- 20 percent of jobs listed no minimum educational requirements
- 9 percent of posted jobs listed high school diploma as the minimum educational requirement. 72 percent listed Bachelor's Degree as the minimum educational requirement.
- 21 percent of the job postings listed a minimum experience requirement of 1 year or less. 36 percent listed 4-6 years.
- Top listed qualifications were: Certified Information Systems Security Professional, Certified Information Security Auditor, Certified Information Security Manager
- Top hiring cities: Seattle, Redmond, Bellevue, Tacoma, Issaquah
- Top Employers hiring for this role:

**Top Companies Posting**

| Company                               | Total/Unique (Sep 2023 - Oct 2023) | Posting Intensity | Median Postin. Duration |
|---------------------------------------|------------------------------------|-------------------|-------------------------|
| Amazon                                | 60 / 35                            | 2 : 1             | 16 day                  |
| Microsoft                             | 30 / 21                            | 1 : 1             | n/                      |
| T-Mobile US                           | 19 / 8                             | 2 : 1             | 10 day                  |
| Boeing                                | 10 / 7                             | 1 : 1             | n/                      |
| Costco                                | 7 / 7                              | 1 : 1             | 28 day                  |
| Accenture                             | 8 / 6                              | 1 : 1             | 20 day                  |
| SpaceX                                | 21 / 5                             | 4 : 1             | n/                      |
| Tiktok                                | 3 / 3                              | 1 : 1             | n/                      |
| CrowdStrike                           | 4 / 3                              | 1 : 1             | 30 day                  |
| Apple                                 | 12 / 3                             | 4 : 1             | n/                      |
| Snowflake Computing                   | 4 / 3                              | 1 : 1             | n/                      |
| F5                                    | 2 / 2                              | 1 : 1             | 14 day                  |
| Fcg Solutions                         | 3 / 2                              | 2 : 1             | n/                      |
| Google                                | 6 / 2                              | 3 : 1             | n/                      |
| Innova Solutions USA                  | 2 / 2                              | 1 : 1             | n/                      |
| Aston Carter                          | 3 / 2                              | 2 : 1             | 13 day                  |
| Social Solutions                      | 8 / 2                              | 4 : 1             | 19 day                  |
| Pacific Northwest National Laboratory | 2 / 2                              | 1 : 1             | 16 day                  |
| AT&T                                  | 5 / 2                              | 3 : 1             | n/                      |
| Another Source                        | 2 / 2                              | 1 : 1             | 6 day                   |
| Deloitte                              | 2 / 2                              | 1 : 1             | 4 day                   |
| Seattle Recruiters, LTD.              | 2 / 2                              | 1 : 1             | 13 day                  |
| Randstad                              | 2 / 2                              | 1 : 1             | 3 day                   |
| Disney                                | 11 / 2                             | 6 : 1             | 3 day                   |
| Services en nuage Genesys             | 1 / 1                              | 1 : 1             | 6 day                   |
| Truveta                               | 1 / 1                              | 1 : 1             | n/                      |
| Dobbs Truck Group                     | 2 / 1                              | 2 : 1             | n/                      |
| Coupang                               | 2 / 1                              | 2 : 1             | n/                      |
| Lyft                                  | 2 / 1                              | 2 : 1             | n/                      |
| Seyfarth Shaw LLP                     | 1 / 1                              | 1 : 1             | n/                      |

Clark College created the Cybersecurity Technician Career Launch program in Southwest WA to address the workforce shortage in Cybersecurity jobs and to meet the expected 12.8% growth in the next 10 years (2019-2029) for this occupation. Spill-over demand from Portland metro area.

CFA developed Cybersecurity Support Technician Career Launch in Renton School District in King County and Yakima Valley Technical Skills Center in Yakima County.

**For each region below, which workforce education & training programs are effectively meeting employer needs, or could effectively meet their needs with adjustment or expanded capacity?**

|                          | Career Explore | Career Prep | Career Launch   | Post-Secondary  |
|--------------------------|----------------|-------------|---|---|
|                          |                |             | Apprenticeship across WA state (Apprenti)   | <a href="#">Link to Cybersecurity certificates and degrees across the state</a> (select Cybersecurity from Select Category)                               |
| <b>Capital</b>           |                |             |   |   |
| <b>East</b>              |                |             |   |   |
| <b>King &amp; Pierce</b> |                |             | T-Mobile/Edmonds College Cybersecurity Specialist Career Launch (Edmonds School District/Edmonds College)<br><br>Skillspire Cybersecurity Pre-apprenticeship (in development) | T-Mobile/Edmonds College Cybersecurity Specialist Career Launch (Edmonds School District/Edmonds College)<br><br>Certificate programs (Edmonds, Highline) |
| <b>Mid-Columbia</b>      |                |             | Cybersecurity Career Launch (Pasco School District/Columbia Basin)  | AAS/BAS Cybersecurity (Columbia Basin)<br><br>Per Scholas<br>Skillspire<br>Vets2Tech<br>Year Up   |
| <b>North Central</b>     |                |             |   |   |
| <b>Northwest</b>         |                |             |   | Multiple Cybersecurity certificate programs (Edmonds)   |

|                      |  |  |                                 |                                 |
|----------------------|--|--|---------------------------------|---------------------------------|
| <b>South Central</b> |  |  |                                 |                                 |
| <b>Southwest</b>     |  |  | BAS<br>Cybersecurity<br>(Clark) | BAS<br>Cybersecurity<br>(Clark) |
| <b>West Sound</b>    |  |  |                                 |                                 |

**Between now and June of 2025, where is there regional momentum to support pathway development in this occupation?**

1. High priority for **King and Pierce** County Regional network:
  - a. Interested employers – T-Mobile
  - b. Opportunity to scale existing T-Mobile Explore Prep program in Software Development to add additional pathway in Cybersecurity
  - c. Shared priority across SL and King Pierce RN
  - d. Growing enrolment in Cybersecurity post-secondary programs
2. Cross-sector engagement with **finance and banking employers** via Finance SL
3. High priority for **Southwest** region
  - a. Consider adding the CFA Cybersecurity track on top of the IT Support pathway in HS.
  - b. Growing demand from Vancouver/Portland metro region
4. Opportunity to improve equitable access including access to rural school districts via virtual instruction.

|  |  |
|--|--|
| <b>Occupation:</b> Data Analyst/Data Scientist   | <b>Sub-sector:</b>   |
| <b>Average wage:</b> <a href="#">\$132,620</a><br><i>Source: ONET</i>  |  |
| <b>Which skills/competencies do employers use as a benchmark to hire someone in this occupation?</b> <ul style="list-style-type: none"> <li>● Problem-solving skills</li> <li>● Knowledge of querying languages such as SQL</li> <li>● Clean and prepare data</li> <li>● Explore and analyze data</li> <li>● Apply statistical knowledge</li> <li>● Create data visualization, dashboards and reports</li> <li>● Communication skills</li> </ul> | <b>Which credentials do employers cite as a valuable benchmark to hire someone in this occupation?</b> <ul style="list-style-type: none"> <li>● Bachelor's degree in math, statistics or computer science or related field</li> <li>● Masters or Doctoral degrees preferred by some employers</li> <li>● Certifications include Google Data Analytics, and Microsoft Certified Power BI</li> </ul> |
| <b>Please describe possible career progression opportunities for this occupation:</b><br><br>Data Analyst->Mid-level Data Analyst->Senior level Data Analyst->Data Manager or Data Scientist   |  |

**Please share the data, employer feedback, and/or Regional Network feedback that helped you identify this as a high-priority occupation:**

This occupation is among the fastest growing of all tech occupations in WA state. Projected growth rate for this occupation in WA state is [36% between 2020-2030](#). Demand for data analysts is growing as companies are increasingly using data to make business decisions.

*Demand for Data/Data Mining Analyst/Data Scientist across WA state (BHEF):*

**Top Job Titles Posted for Entry - Level Technology Roles in Washington State (Past 12 Months)**



5/14/2024 \*Source: Lightcast

BUSINESS-HIGHER EDUCATION FORUM | WWW.BHEF.COM | ©BHEF

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Source: Lightcast

**For each region below, which workforce education & training programs are effectively meeting employer needs, or could effectively meet their needs with adjustment or expanded capacity?**

|  | Career Explore | Career Prep | Career Launch | Post-Secondary/Training Program   |
|--|----------------|-------------|---------------|---|
|  |                |             |               | <a href="#">Link to Data Analytics certificates and degrees across the state</a> (select Data Analytics from Select Category) |

|               |  |  |  |                    |
|---------------|--|--|--|--------------------|
| Capitol       |  |  | BSC Data Analytics Career Launch (WSU Pullman) |                    |
| East          |  |  | BSC Data Analytics Career Launch (WSU Pullman) |                    |
| King & Pierce |  |  | BSC Data Analytics Career Launch (WSU Pullman) | Skillspire Year Up |
| Mid-Columbia  |  |  | BSC Data Analytics Career Launch (WSU Pullman) |                    |
| North Central |  |  | BSC Data Analytics Career Launch (WSU Pullman) |                    |
| Northwest     |  |  | BSC Data Analytics Career Launch (WSU Everett) |                    |
| South Central |  |  | BSC Data Analytics Career Launch (WSU Pullman) |                    |
| Southwest     |  |  | BSC Data Analytics Career Launch (WSU Pullman) |                    |
| West Sound    |  |  | BSC Data Analytics Career Launch (WSU Pullman) |                    |

**Between now and June of 2025, where is there regional momentum to support pathway development in this occupation?**

*For each region listed, please describe:*

1. Key **momentum factors** (e.g., interested employers, high-priority for Regional Network, opportunity to improve equitable access, opportunity to scale existing programs, portions of CCW pathway already built)



2. **High-potential opportunities** to support pathway development
3. Is supporting those high-potential opportunities a **shared priority** across SL and RN?

- **East Region**

- The Data Analytics program at WSU is doing well and has 288 enrolled students across the 4 sites. They have 75 alums who graduated, and students are getting jobs in the data field. They have an advisory board of 20 employers who give them feedback on curriculum, etc. They would like to offer some Data Analytics courses/certificates/AA at the Everett, Vancouver campuses and Clark College for transfer students as it has been difficult for them to finish in 2+2 years. Need support from Sector Intermediary/CCW.
- The Data Analytics Career Explore program is also growing across the state. They have offered it to tribes and migrant worker populations. There is interest to expand it further but need funding.

**Please describe the top barriers employers have identified to hiring for the above occupations:**

- Lack of soft skills such as problem-solving, collaboration, teamwork, time management and professional skills
- Not enough work experience (many entry level roles require 3 years of work experience)
- Lack of real-world project experience
- Lack of team or project-based work
- Lack of clear understanding of technical fundamentals
- Lack of Industry credentials: For example, Department of Social and Health Services, DSHS, requires CompTIA A+ for entry-level Customer User Support roles
- Would like to hire interns but don't have funding to do so

**Please describe the type of programs or approaches employers have found helpful in hiring for the above occupations:**

- Hire interns to give students work-based learning experience to get them ready for full-time employment. Internships are a valuable experience for both employers and students, however employers may find it difficult to manage their own internships programs (resource constraints, hiring, supervision, onboarding processes, etc.). For example, Quincy school district hired interns from the Data Center Technician Career Launch program.
- Provide hands-on real world project experiences built into pathway program. For example:
  - Programs provided by [CodeDay Labs](#) and [Riipen](#). CodeDay Labs provides students with virtual internships where they match students with industry mentors to work on a real-world open-source project. Riipen is a work-based learning platform helping educators, organizations, and learners collaborate on real industry projects to bridge the gap between higher education and employment.
  - CFA industry partner, Bank of America, has created a real-world project for the Software Development PAP students where they can practice the skills they

have learned working in small teams during the program.

- Through [Pisces](#) program: Students analyze streaming data for small communities or municipalities who may otherwise not be able to obtain cybersecurity to the extent needed. Through PISCES, a reliable high-quality pipeline is being developed to address the shortage of cyber professionals ready for the workforce.
- Give feedback on competencies for Career Launch programs
- Provide speakers, worksite tours and job shadows to inspire students
- Mentoring for interns via programs such as Mentors in Tech
- Employee Referral Programs: Encouraging current employees to refer qualified candidates for open positions
- Microsoft Data Center Academy – scholarships and more [Datacenter Academy | Microsoft Careers](#)

**What is needed to increase participation of BIPOC students in your sector's high priority occupations? To increase participation of students from rural areas? Which programs are doing this well?**

As mentioned earlier, there is a lack of diversity in the tech sector and in tech roles in other sectors. The following are some initiatives to increase participation of BIPOC students:

**Access for students in rural areas:** Students in rural areas are being left behind from access to technology pathways as often the schools cannot find teachers to run the program or do not have enough resources to offer the pathways. For rural areas, we need to deliver programs virtually to reach students. This addresses the teacher shortage issue as well. In many rural schools, the class sizes are very small. We should consider offering virtual classes for multiple schools at the same time. The Southwest region is the first of its kind in our state to offer a pathway program virtually. They started offering tech pathway programs virtually in the fall of 2023. In fall of 2024 CFA is partnering with the Southwest region to offer the Software Development Pre-Apprenticeship program virtually via the CTE Rural Cooperative to 6-7 schools in the White Salmon school district in Klickitat and Skamania counties in fall 2024. We will evaluate this pilot and plan to take this model to other regions.

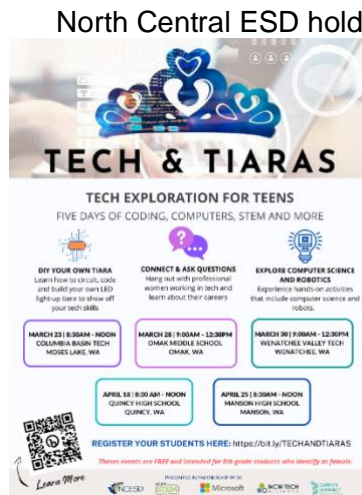
**Youth Apprenticeship:** Apprenticeships have been proven to be a successful model to address the lack of diversity. Registered apprenticeships offer opportunities for individuals without college degrees to learn new skills while getting paid, as well as cultivate a professional network and gain access to living-wage jobs. Encourage program builders to develop youth apprenticeships in IT pathways in partnership with K-16.

**Partnering with CBOs:** Program builders need to partner with CBOs that serve BIPOC students to bring these students into Career Launch and training programs to give them the training and supports to place them into good paying IT jobs.

**Representation Matters:** Program builders need to provide access to BIPOC speakers and mentors from the tech industry to students. It is important that students see people who look like them in these roles. This builds confidence, inspires students, and allows them to start seeing themselves in these types of positions.

**Career Readiness workshops and job fairs:** Program builders need to offer workshops ranging from exploring careers in tech, to resume and interview prep, Linked In, networking, job fairs, emerging technologies such as AI and more to reach BIPOC students.

There are several examples of programs that are doing a good job of increasing participation of BIPOC students:



North Central ESD holds a bi-annual Tech and Tiaras event for middle school girls to spark their interest in technology careers. The event includes building an LED light-up tiara, talking with professional women about their careers in tech, and exploring hands-on activities in computer science and robotics. CFA attended the event in Quincy in 2023 and participated in a Hi-Tech bingo game with the young women during one of the sessions.

As part of the Data Center Technician CL program in Quincy SD, they are partnered with a local employer, Sabey Data Centers, to take the students for regular tours of the data centers as well as have employer speakers come and talk to students about their careers.

King-Pierce Regional Network provides Career Tours and Career Shadows for students furthest from opportunity. Career Tours include a worksite visit to a company to spark student interest in a broad range of careers available within a company. On a Career Shadow students spend a structured day with an employee who holds a position that a student has expressed interest in learning more about. King-Pierce Regional Network has developed relationships with about ten technology companies who support this work, including Microsoft, Smartsheet, and Amazon. King-Pierce Regional Network and CFA are collaborating to link these experiences to grow participation in internships, postsecondary attainment, and employment for careers in IT.

MinT's program provides students from 9 partner community and technical colleges access to structured yearlong mentorship with industry mentors, industry mentor-led Open Source capstone projects and recruiting to connect employers to students.

WSU's Data Analytics Career Explore play shops for elementary school children and their families have been very successful and expanding across the state. They have built partnerships to offer these to tribes including Kalispel and Yakima Nation, as well as to migrant workers in the Brewster region. The workshops are 3-4 hours long and are offered by undergraduate and graduate students from WSU. They invite kids and families to do activities around data to demystify data analytics and inspire students.

Through WJI work, CFA is partnered with Seattle Jobs Initiative (JI). SJI will recruit BIPOC serving CBOs and hold 2 cohorts of learning communities with 6-8 CBOs each where they will share career pathways in tech, opportunities in technology, connect CBOs to organizations providing skills training, apprenticeship opportunities, wrap-around supports and funding for post-secondary education.

CFA's Software Development Career Prep program brings in BIPOC and other industry volunteers once a week into the virtual classroom to provide career awareness talks and workshops.

CFA has offered Career Readiness workshops in partnership with Bellevue College, AWS, WiCyS, JP Morgan and others ranging from Finding your career in tech, resume and mock interviews, hackathons, job fairs, LinkedIn, networking and more. From October 2023-April 2024, over 350 students from CTCs and high schools across WA state attended 27 workshops.

### **What overarching strategies do you recommend to support pathway development for the highest-priority occupations in your sector?**

#### **Collaboration between industry and education**

Encourage collaboration between industry, education, training partners, and workforce to enhance and build specialized training programs to meet the needs of the tech sector. There are several examples of employer-led pathways and collaboration on work-based learning opportunities, e.g. Per Scholas offers tech training pathways in collaboration with TEKsystems based on in-demand technical skills from their clients, Software services company, Globant, partners with Miami Dade college to place student interns into projects with clients. The graduates are paid a stipend provided through a grant from Miami Dade Foundation, Apple and the state of Florida. Another successful example is scaling the Data Center Technician Career Launch program from Quincy SD to Wenatchee SD in partnership with CompTIA and Sabey Data Centers. Sabey was a close partner and gave feedback on curriculum. There has been so much interest that 135 students have signed up for this pathway in fall 2024. Sabey has also been a close internship partner along with offering worksite tours and speakers for the students.

Input from employers is needed, especially regarding emerging technologies such as AI and Data Analytics as well as evolving skills for the high priority IT pathways. We are still figuring out how these technologies will evolve tech-based programs. However, it is still recommended to include AI and Data Analytics into existing curriculum and/or learning experiences for students. Employers have stated that familiarity with these topics is highly desirable.

One way that industry-education collaboration can be achieved is via the development of an Industry Council, which will focus on emerging hiring demand, new technologies, and adapting technology education and training programs to meet emerging needs. This is something CFA is creating as part of the WJI Washington Tech Workforce Coalition. CFA is partnering with AWS Tech Alliance to bring the industry relevant cloud curriculum into college pathway programs and building in hands-on projects to support this curriculum into the pathway programs. Other regions such as North Central are also doing coalition-building or convening work, such as North Central, which has the Grant County Industrial Alliance, and Southwest is planning an employer convening to build collaboration.

#### **Preparing students with soft skills and hands-on project work**

Students going through 2-year and 4-year programs need additional hands-on training via capstones and internships to prepare them for entry level jobs. These projects teach them

valuable soft skills and give them real-world experience that we hear employers want to see in entry-level hires. These experiences need to be built into the college pathway. There are a number of programs doing a great job here as mentioned earlier, such as Riipen, MinT and CodeDay, which should be scaled.

#### **Partnerships with industry associations**

CFA will build partnerships with industry associations such as WTIA, Tech Alliance, WA Roundtable, AWS Tech Alliance, to bring employers to the table to provide internships and jobs to students, and convene roundtables to foster tech workforce discussions.

#### **Programs proven to increase diversity in technology roles**

The system needs to develop and scale programs proven to address diversity in technology roles, such as apprenticeships.

#### **Strategies for access to rural students**

Developing rural strategies to provide access to IT pathways to students in rural regions such as partnerships with the Southwest Region's CTE Rural Cooperative to offer pathways virtually. Information Technology as a sector is particularly suitable for virtual training as a lot of jobs can be done remotely as we saw during COVID.

#### **Career Explore Internship in partnership with CBOs**

Microsoft revamped its high school internship program, Microsoft Discovery Internship, and partnered with 5 CBOs to recruit students from. This 4-week internship program is a Career Explore type program where students are exposed to coding and create a project with guidance from mentors. Employers should be encouraged to create more such programs.

#### **Enhanced Career Exploration and Preparation Programs**

Implement comprehensive career explore and prep programs within the K-12 education system to provide students with early exposure to opportunities in IT. This may include implementing curriculum activities within the classroom, organizing site visits and tours to provide students with interactive and hands-on experiences, facilitating internships, and offering ongoing mentorship opportunities with industry professionals. Examples have been noted in answer to the previous question. WABS Career Tours and Career Shadows program, and WSU's Data Analytics Career Explore play shops are high-quality programs that excite young learners about tech careers, and that we should consider scaling.

#### **Teacher Training**

The system needs diverse teachers who have computer science certifications and can teach students to a level that provides real world skills, career exploration and workforce preparedness. See [here](#) for more detail.

#### **Partnerships with bootcamp training programs to address gap in employer demand**

While we need to expand 4-year IT programs at the CTCs, the system also needs to partner with bootcamp training programs to fill the gap between demand from employers and the supply till the education system can catch up and provide more CS 4- and 2-year degrees. These training providers are quicker to pivot to industry needs and add/enhance pathways than are educational institutions. CFA is partnering with several training providers through the WJI grant work such as Per Scholas, Ada Developers Academy,

Year Up, Vets2Tech, and others. The work of these training partners should be supported beyond the WJI work.

### **Provide funding for Intern pay and well as internship structure funded**

The system needs to provide subsidies/funding for employers to pay for interns as well as for the cost of running an internship program. Many employers would take on interns, but they cannot afford to pay them and/or the cost of managing the program. For example, smaller companies and nonprofits have need for data analysts but they cannot afford to pay the WSU Data Analytics Career Launch students for internships. Consider programs like internship as a service offered through employer member associations such as chambers, cities and Small Business Development councils.

A statewide internship design should be created to simplify the process for employers to participate in and manage internships.

## **Between now and June of 2025, how will you prioritize your time, attention, and resources as a sector leader to support regional pathway development and advance the recommendations above? What specific actions will you take?**

### **Partnerships with Regional Networks**

Staying connected with Regional networks, conducting quarterly check-ins. Working with them to understand employer demand for IT jobs in their region and to make sure education is meeting the employer demand, as well as supporting them to bring in new employers into Career Launch programs. Collaborate with them to understand which Career Launch programs are successful in their regions and ripe for scaling. Share examples of models across the state that are working well for adoption.

### **Collaboration between industry and education**

Look for proven models and opportunities to build collaboration across industry and education around training programs to meet the needs of the tech sector. CFA will form an Industry coalition, which will focus on hiring demand, new technologies, and adapting technology education and training programs to meet emerging needs. CFA is building a partnership with AWS Tech Alliance to bring in cloud curriculum into college pathway programs. Encourage other regions to convene employers and build collaboration between employers and education.

### **Lack of a diverse talent pipeline**

Apprenticeships have been proven to be a successful model to address the lack of diversity. Apprenticeships combine paid on-the-job training with classroom instruction to prepare workers for highly-skilled careers. Workers benefit from apprenticeships by receiving a skills-based education that prepares them for good-paying jobs. Apprenticeship programs help employers recruit, build, and retain a highly-skilled workforce.

CFA is developing a youth apprenticeship for K-16 for tech job roles. CFA will also continue to work with Apprenti to create apprenticeship opportunities for adults in WA state, as well as encourage regions to build Apprenticeship programs.

**Address gap in employer demand**

Partner with bootcamp training programs to fill the gap between demand from employers and the supply till the education system can catch up and provide more CS 4 and 2 year degrees. CFA is doing this through the WA Tech Workforce Coalition/WJI grant work. We will use the WJI work to explore what including these training partners looks like. This work should inform how CCW & others invest in this area moving forward.

**Lack of access to programs in rural areas**

Developing rural strategies to provide access to IT pathways to students in rural regions such as partnerships with the Southwest Region's CTE Rural Cooperative to offer pathways virtually. Pilot the program in fall 2024 with the goal to scale across WA state.

**Increase participation of BIPOC students**

Work with regions to increase participations of BIPOC students in programs as well as share examples of best practices across regions. Offer Career Readiness workshops and events for diverse students across WA state high schools and CTCs. Provide opportunities for mentoring for BIPOC students. Share models of programs that are doing this well across the state, such as the North Central Region's Tech and Tiaras program.

**Significant demand for Tech roles in non-tech industry**

Collaborate with other Sector Leaders in areas such as Finance, Healthcare, Aerospace, Manufacturing, CleanTech and Life Sciences to connect to employers hiring for IT jobs in these sectors and to build cross-sector pathways for IT careers in these sectors.

**Career Explore, Prep and Launch programs**

Assess and/or establish a full career pathway in alignment with Career explore, prep and launch for priority roles starting with Software Development, Customer User Support, and Cybersecurity in King and Pierce County region and further scale to other high priority regions.

**Employers are looking for experience and soft skills**

Provide real-world experience to students via capstone projects, real-world projects, internships, and apprenticeships. Partner with industry organizations to bring more employers to the table to offer work-based learning opportunities to students.

**Impact of emerging technologies such as AI**

Assess the impact of emerging technologies such as AI on IT career pathway programs based on employer demand.

**Train teachers**

Partner with IT CoE and IT Cybersecurity to train and develop teachers to teach tech career pathways.