Cybersecurity Talent Needs & Initiatives
Michigan’s Skills Gap

As of 2020, 70% of Michigan jobs require postsecondary education.

In 2017, 47% of Michigan workers had a certificate or degree.
Changing Job Market

Types of jobs in the next 20-30 years are unrecognizable.

50% of subject knowledge in the first year of a four-year technical degree in the U.S. will be outdated by the time students graduate.
Governor Whitmer’s Goal

The association between education and income is strong.

Governor Whitmer’s Goal: 60% of Michiganders achieving postsecondary credentials by 2030 (compared with current 47% who go beyond high school).
2019 Burning Glass Report

Recruiting Watchers for Virtual Walls

• Cybersecurity job postings have grown 94% since 2013, compared to only 30% for IT positions overall.

• Cybersecurity jobs account for 13% of all IT jobs but take 20% longer to fill than other IT jobs.

• Demand for automation skills in cybersecurity roles has risen 255% since 2013. Demand for risk management rose 133%.

• More than half of jobs demanding cybersecurity skills are in fact other IT roles, where security is only one part of a broader job description.
## 2019 Michigan IT Cluster Report

<table>
<thead>
<tr>
<th>Occupation Title</th>
<th>New Job Ads*</th>
<th>Median Salary**</th>
<th>Annual Openings***</th>
<th>Typical Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Security Analysts</td>
<td>219</td>
<td>$88,290</td>
<td>150</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Computer Programmers</td>
<td>90</td>
<td>$72,800</td>
<td>220</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Software Developers and Software Quality Assurance Analysts and Testers</td>
<td>1,158</td>
<td>$89,460</td>
<td>3,360</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Web Developers and Digital Interface Designers</td>
<td>127</td>
<td>$62,240</td>
<td>280</td>
<td>Associate’s Degree</td>
</tr>
<tr>
<td>Database Administrators and Architects</td>
<td>208</td>
<td>$83,290</td>
<td>210</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Network and Computer Systems Administrators</td>
<td>138</td>
<td>$76,400</td>
<td>510</td>
<td>Bachelor’s Degree</td>
</tr>
<tr>
<td>Computer Network Architects</td>
<td>72</td>
<td>$104,520</td>
<td>210</td>
<td>Bachelor’s Degree</td>
</tr>
</tbody>
</table>

* For the month of July 2020, Conference Board Help Wanted Online  
** 2019 Occupation Employment Statistics  
*** 2018-2028 Statewide Long-Term Projections

*2019 Michigan Information Technology: 2019 Industry Cluster Workforce Analysis*
When filtered for cybersecurity and data privacy-related skills and certifications, there are 138,000 postings in southeast Michigan with the top occupations as follows:

- Software Developers: 12,190
- Computer Occupations, Other: 2,464
- Insurance Sales Agents: 2,368
- Information Security Analysts: 2,210
- Secretarial/Admin: 1,594
- Supervisors of Office/Admin: 1,569
- Accountants and Auditors: 1,555
- Web Developers: 1,530
- Mechanical Engineers: 1,490
- Computer Programmers: 1,340
- Exec. Admin. Assistants: 1,233
National Cybersecurity/IT Education Resources

- Cyber Seek
- Cisco Networking Academy
- Coursera
- CompTIA
- National Initiative for Cybersecurity Education (NICE)
- Code.org
- IBM Skills Academy
- Project Lead the Way
- Google
Michigan Cybersecurity/IT Initiatives

• K-12 Initiatives: EduPath, CyberHubs, CyberPatriot, etc.
• MiSTEM Network
• Michigan Council of Women in Technology Foundation (MCWT)
• Michigan Initiative for Cybersecurity Education (MICE)
• Michigan Cyber Range
• Michigan Cyber Civilian Corps
• Michigan Mobility Institute
• Masters of Mobility: Cybersecurity on the Road
• Girls Go CyberStart

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Cybersecurity Degrees in Michigan

- **Associate’s Degrees in cybersecurity** can be earned through programs at six Michigan schools.
- **Bachelor’s Degrees in cybersecurity** are offered by a total of 10 schools in the state. Six of these are “National Centers of Academic Excellence in Cyber Security” (CAEs) by the NSA.
- **Master’s Degrees in cybersecurity** are available through five schools in Michigan, of which three are designated as CAEs.
- **Certificates and Doctoral Degrees in cybersecurity** are offered by three institutes.
New Employer-led Michigan IT Council

Building on the IT Asset Mapping, LEO-WD is launching a statewide IT Employer-led Collaborative.

Three outcomes:
1. IT Education
2. IT Workforce & Training
3. IT Entrepreneurs & Emerging Technologies
Regional Cybersecurity/IT Collaboratives

- UM Defense Cybersecurity Workforce Focus Group
- 20 Fathoms (Traverse City): tccyber
- Institute for Excellence in Education (Mt. Pleasant)
- Great Lakes Bay Michigan Works! IT Group
- Capital Area Michigan Works! IT Council
- Detroit Mercy Center for Cyber Security & Intel Studies
- West Michigan Center for Arts and Technology (WMCAT)
- WIN Apprenti – Cybersecurity Analyst

- Tech248
- West Michigan Tech Talent
- Tech Elevator
- Grand Circus
- U.P. Cybersecurity Institute

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New Opportunities Supporting Sixty by 30

Governor Whitmer’s Goal: 60% of Michiganders achieving postsecondary credentials by 2030 (compared with current 45% who go beyond high school).

• Future for Frontliners: Provides a tuition-free pathway to college or a technical certificate to essential workers who do not have a college degree

• Registered Apprenticeship Programs $14.3 Million
  o Youth Apprenticeship Readiness Grant Program
  o Building State Capacity to Expand Apprenticeship through Innovation

• “Skills to Work” Digital Hub and Return-to-Work Playbook
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Workforce Development
Defense Cybersecurity Assurance Program (DCAP)
Helping keep the DoD supply chain strong by supporting companies in cybersecurity resiliency
Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD(A&S)) recognizes security is foundational to acquisition and should not be traded along with cost, schedule, and performance moving forward.

The Department is committed to working with the Defense Industrial Base (DIB) sector to enhance the protection of controlled unclassified information (CUI) within the supply chain.
Cybersecurity Maturity Model Certification

- CMMC establishes cybersecurity as a foundation for future DoD acquisitions
- CMMC levels align with the following focus:
  - Level 1: Basic safeguarding of FCI
  - Level 2: Transition step to protect CUI
  - Level 3: Protecting CUI
  - Levels 4-5: Protecting CUI and reducing risk of APTs
Path to an Accreditation Ecosystem

ORGANIZATIONS SEEKING CERTIFICATION

1. Learn and Understand about CMMC Requirements
2. Identify Gaps
3. Remediate Gaps and Get Ready
4. Conduct Assessment, Earn Certification

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Cybersecurity in the Defense Sector

- Small Business Workforce
- Cybersecurity Standard
- Certification
- Ongoing Maintenance
Cybersecurity in the Defense Sector

- Educational Seminars
- Workforce Focus Groups
- CMMC Company Assistance
- Supply Chain Mapping
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Defense Cybersecurity Assurance Program

Workforce Focus Groups
Cybersecurity – Workforce Drivers

1 - Lack of Cybersecurity Expertise
2 - Changing Technology
3 - Cost
4 - Flow Down
5 - Compliance Requirements
What Needs Were Identified?

- Security and Awareness Training
- Management Support
- Technical Writing Skills
- Audit and Accountability
Needs Continued...
 Potential Solutions

• Develop general security guidelines
• Work with universities
• Provide basic technical writing classes
• Training for how to organize and handle company’s sensitive data
• Provide cyber policy and procedure templates
• Host cybersecurity management classes
• Additional funding
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K-12 Cybersecurity Initiatives

Students

- [Michigan Integrated Technology Competencies for Students (MITECS)](Michigan Integrated Technology Competencies for Students (MITECS))
- [Michigan’s K-12 Computer Science Standards](Michigan’s K-12 Computer Science Standards)
- Cybersecurity Programs
  - [CyberPatriot](CyberPatriot)
  - [Cyber Range](Cyber Range)
  - [Cyber Auto](Cyber Auto)
- Digital Badges
K-12 Cybersecurity Initiatives

Educators

- **EDUPATHS**
  - Fundamentals of Cybersecurity – Part 1 & 2
  - CyberPatriot
  - iKeep Safe

- Podcasts: MI CyberPatriot Competition Podcast, Detroit Mercy Center for Cyber Security & Intelligence Studies Podcast on awareness

- Cybersecurity Month of October, events around the state: SecureWorld Detroit, TRENDS, CISCO Next Gen, Michigan Association for Computers Users in Learning: CompSci conference, North American Industry Classification System

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Cybersecurity Initiatives: Systemic Thinking
SecureMI Schools – Overview

Concept
The State of Michigan can drive economic growth by developing a cybersecurity education pipeline and attracting industry investment to the state.

Proposal
Provide grants to select schools to improve cybersecurity education in Michigan.
SecureMI Schools - Goals

Develop a plan under the SecureMI banner to encourage cybersecurity education and digital security at schools. This plan should do the following:

- Foster the development of cybersecurity education at Michigan high schools.
- Encourage schools to become more secure.
- Empower students to assume responsibility for defending their schools from digital threats.
- Develop a professional pipeline for students interested in the cybersecurity field.

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SecureMI Schools – Three Pillars

To participate in the program, schools must engage in three categories of activities, with higher levels requiring more work and coordination.

- **Securing the School**: Applying cybersecurity principles to better secure the school’s systems and information.
- **Establishing Cybersecurity Curriculum**: Integrating cybersecurity into the curriculum.
- **Building Future Cybersecurity Leaders**: Establishing a culture of cybersecurity awareness and exposing students to the field.
SecureMI Schools – Level of Maturity

Schools may qualify for three levels of maturity:

- **Level 1 – Partner**
  Partners have committed to participating and supporting Michigan’s cybersecurity community and building the cyber workforce of tomorrow.

- **Level 2 – Leader**
  Leaders have taken steps to improve their own security and develop cybersecurity programs.

- **Level 3 – Visionary**
  Visionaries have fully implemented security programs and a cyber curriculum providing a path to a career or further education.
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