Executive Summary

In September 2020, the National Academy of Engineering (NAE) established the Committee on Racial Justice and Equity (RJ&E) to advise the NAE president on actions to advance racial justice and equity in the field of engineering and, by using engineering practices and tools, to address equality and access in society\(^1\). The RJ&E Committee established a planning subcommittee to develop strategies and objectives for addressing injustice and inequity and identifying action priorities. With funding from the Alfred P. Sloan Foundation, the NAE is commissioning a paper to conduct a comprehensive landscape scan on five topical areas (detailed below). The planning subcommittee will use the knowledge gained from this landscape scan, along with a parallel literature review, to determine how the RJ&E Committee can best use the convening power and strengths of the NAE to amplify existing best practices, build collaborations between individuals and organizations working toward a common goal, and promote emerging work that addresses racial inequity and injustice. The landscape scan and literature review will help the RJ&E Committee develop a framework for action, including exploring the feasibility and need to develop an Action Collaborative or Action Network. This framework will inform all future work of the RJ&E committee.

The purpose of the landscape scan is to efficiently identify existing programs in the five topical areas efficiently (detailed below), characterize and catalogue existing best practices, identify collaborations and provide directions for future work. The landscape scan will identify existing partnerships and networks of collaborations between academia, industry, engineering professional societies, nonprofit organizations, and any relevant affinity groups working to raise awareness of racial injustice. The scan should include programs of the National Academies as well as, to the extent possible, international efforts. The authors of the landscape scan should provide (i) a prioritization of state of the art practices and approaches based on effectiveness and (ii) a summary of the success metrics used by these various practitioners. In addition to identifying effective practices and collaborations, the landscape scan will ensure that the work of the RJ&E Committee supports and enhances current work by other organizations, with the aim of supporting more equitable and accessible structures, systems, and policies.

\(^{1}\) Information about the RJ&E committee is available at https://www.nae.edu/238548/NAE-Presidents-Racial-J ustice-and-Equity-Committee.
Scan Methodology

We briefly describe the search techniques and databases used to scan for programs, institutions, and partnerships related to the RJ&E’s five topic areas.

Topic 1. Increased Awareness of Racial Injustice and Inequity
We began with professional engineering societies and affinity groups at the national level to review successful awareness campaigns and efforts geared towards racial equity and injustice. We focused on groups that had a mission of increasing the racial representation of engineers to encourage equity.

Topic 2. Mentoring for Minority Engineering Students and Early-Career Minority Engineers
Using the ABET-EAC\(^2\), we began the search for engineering specific mentoring programs by identifying the 2300 bachelor of engineering programs across 551 institutions. Once relevant institutions were identified, the query “[institution/college name] engineering mentoring program” was searched using Google as a search engine. The first three pages of results were scanned for engineering-specific mentoring programs before moving to the next institution/college. The researchers were specific to only include engineering specific mentoring programs in the scan.

Topic 3. Non degree Training for High-Tech Positions
Keeping track of enrollment, completion, and outcomes for non degree holders is challenging because many program providers are not regulated by the state. Even licenses, which are awarded by the state, are issued by different state agencies. Data on non degree credentials are often disaggregated, making such data difficult to find and compile. State-level records contain data about for-credit certificate programs, registered apprenticeship certificates, and licenses as reported and monitored by the National Skills Coalition\(^3\) an organization that engages across state policy silos to advance high quality skills training across our Nations workforce.

For this topic the search began with individual state reports and policies\(^4\) on workforce development priorities, programs and outcomes. Most states leveraged articulation agreements with the junior and state colleges to offer non-degree academic certificates, credentials and industry certification education and training for high-tech career tracks/occupations. Synthesizing across sources, individual state department of labor and workforce development websites, information regarding non-degree training programs were consolidated across the

\(^2\) ABET and EAC accredited institutions: amspub.abet.org
\(^3\) National Skill Coalition: https://nationalskillscoalition.org
\(^4\) National Skills Coalition 2017 Sector Partnership Policy - 50 State Scan: Sector-Partnership-Scan-1.pdf
(nationalskillscoalition.org)
following sources, CyberSeek\textsuperscript{5} interactive map for education and training providers for careers in cybersecurity as well as a review of the annual CompTIA\textsuperscript{6} State of the Tech workforce report. For this topic, the US Department of Labor repository for Apprentice Grants from the Executive Order on Expanding Apprenticeships in America\textsuperscript{7} was also reviewed to find non-degree training programs to upskill workers for high-tech occupations. For non-degree training in the private sector, Course Report\textsuperscript{8} was used to identify in-person and online coding bootcamps in each of the states, as well as provide a high-level overview of program outcomes\textsuperscript{9} from graduates of those programs.

\textit{Inclusion Criteria:} In reviewing non degree programs for high-tech positions, we used the US Bureau of Labor Statistics (BLS) definition of “high-tech” which specifically refers to careers that use technology or skills that must be constantly updated or are considered the standard for only a few years. Many fields and industries can be considered high-tech, including those in computer science, information technology, and engineering. Some of the non degree credentials/certifications included in this scan are those for information security analyst, database administrator, civil engineer, mechanical engineer, IT manager, computer programmer, computer systems administrator, and computer support specialist. Graduate certificate programs were excluded from our searches, as they required a 4-year baccalaureate degree to enroll. Additionally, most state program information for upskilling workers comes from state Workforce Innovation and Opportunity Acts (WIOA) program websites.

\textbf{Topic 4. Development of Data and Relationships to Support ML Algorithms}

For topic 4, the researchers looked at “[institution/college name] eliminate bias artificial intelligence” and “[institution/college name] eliminate bias machine learning.” Any research groups and programs with at least a concentration or other curricular focus in AI and ML were listed. Some searches only listed faculty involved in AI and ML research who did not have a research group. For those faculty, the department’s name was included in the database. From the list of ABET-accredited programs, we also reviewed institutions with academic research groups and start-ups focusing on unbiasing AI and ML algorithms. A review of the Forbes list for AI/ML start-ups and best schools for AI/ML also provided lists of entities working to unbias AI

\textsuperscript{5} Cyberseek: \url{https://www.cyberseeks.org} is an interactive tool to help close the skills gap in high tech IT and computing occupations
\textsuperscript{6} CompTIA 2022: \url{https://www.cyberstates.org} is an annual report on the provides a summary on the state of technolog in all 50 states as well as major metropolitan areas and cities.
\textsuperscript{7} Press Release: Executive Order on Expanding Apprenticeships in America U.S. Department of Labor Announces Nearly $100 Million In Apprenticeship Grants to Close the Skills Gap | U.S. Department of Labor (dol.gov)
\textsuperscript{8} Course Report: 2020 Coding Bootcamp Market Size Report
\textsuperscript{9} Course Report: 2020 Bootcamp Outcomes + Demographics Study
across both non-profit and for-profit sectors. Market stats for new applications of AI/ML technology\textsuperscript{10} and business ventures were useful in giving a high-level overview of potential consequences of AI/ML that could further exacerbate racial disparities in sectors like human resources, healthcare, and financial sectors.

**Topic 5. Efforts to Increase the Participation of Minorities in Engineering and Technology Using Place-Based Innovation Zones**

The Kauffman Index Reports\textsuperscript{11} were reviewed to identify innovation zones and areas with potential for start-up ecosystems\textsuperscript{12} and entrepreneurial growth by states and metropolitan areas. Additionally, the findings for innovation zones were cross-referenced with the engineering-specific mentoring programs to identify college towns alongside high-tech metropolitan cities. The data on innovative zones was juxtaposed with federally designated low-income counties\textsuperscript{13} in each state to identify parts representing the largest income disparities. Additional sources like Entrepreneurial Success Mindset\textsuperscript{14} were reviewed to identify regions and best practices for generating economic growth within each of the 50 states in terms of geography and the types of industries that are best supported in different parts of each state.

\textsuperscript{10} AI & ML App Ideas for Startups in 2022: Waiting for You (octalsoftware.com)
\textsuperscript{11} Kauffman Index Growth Entrepreneurship State 2017.pdf
\textsuperscript{12} 2017_Startup_Activity_State_Report_Final.indd (kauffman.org)
\textsuperscript{13} Opportunity Zones Map - OpportunityDb
\textsuperscript{14} Here’s How to Start a Business in All 50 States in America - StartUp Mindset
National Snapshot

This part of the scan will provide a high-level, national snapshot with key features about programs and organizations across the five focus areas that emerged from the landscape scan. At the national level, we focus on specific programs, partnerships, and policies that have been put in place to cultivate economic growth and upskilling in local areas, emphasizing embracing the industries, resources, and needs of local communities. To that end, there is some overlap across topics, particularly concerning programs and policies like topic 3 and topic 5. Additionally, there was overlap across topics 4 and 5 concerning AI/ML startup companies that contributed to innovation zones within the same geographical areas. The specific examples used to exemplify best practices will be taken from nationwide programs to give a representative sample of what is happening from coast to coast as it relates to the Racial Justice and Equity committee focus.

Key Features for Topic 1: Increased Awareness of Racial Injustice and Inequity

- This topic appears to be the most impactful at the local level rather than the state or national level
- Most companies have used an open letter as a form of support to acknowledge racial injustice, however, most the items appeared only after the incident of George Floyd and the rise of the Black Lives Matter movement
- Organizations have varying levels of accountability, and without proper metrics, efforts can appear as performative justice
- Some organizations collaborate with other entities that are focused on the K-12 domain
Key Features for Topic 2. Mentoring for Minority Engineering Students and Early-Career Minority Engineers

- Several institutions/colleges use an NSF S-STEM grant to fund their mentoring programs
- There is an increase in the number of programs that provide a monetary stipend to mentors
- Only some programs refer to a mentee as a protege, which is a more progressive term
- There are more one-on-one mentoring programs than any other form of mentoring
- There are more women-focused mentoring programs than race-based engineering mentoring programs
- Several institutions describe mentoring as a professional service, however one engineering-specific mentoring program required those who were seeking a mentor to pay for membership\textsuperscript{15}
- Some institutions have partnered with industry corporations to provide mentoring experiences to students
- Most mentoring focuses on two major positions in the journey of a student, when they are a freshman or looking for a job
- Some institutions are using the word “mentor” to describe a position that would often be referred to as a tutor
- One institution created a mentoring program solely due to the impacts of CoVID\textsuperscript{16}

Best Practices

- Few institutions mentioned socioculturally conscious mentoring\textsuperscript{17}
- Leverage the intersectionality that exists for students in mentoring programs (i.e., student athletes)\textsuperscript{18}
- When trying to create a mentoring program, partner with student organizations (i.e., SWE) who have established forms of mentoring

Key Features for Topic 3. Non degree Training for High-Tech Positions

- Given the national imperative of upskilling the workforce and the shift to remote work en masse during and post COVID-19, individual states prioritize support for non degree training programs.

\textsuperscript{15} University of Iowa
\textsuperscript{16} Indiana - Pete’s Pals
\textsuperscript{17} New Mexico has engineering-specific mentoring focused on Native American students
\textsuperscript{18} Milwaukee School of Engineering
● 24 states have put for task forces to determine “certificates of value.”
● Best practices include child care options and living stipends (for full-time, in person training programs), funding/financing options (e.g., income sharing agreements, deferred tuition).
● Certification completion varies by region; for-profit institutions (e.g., bootcamps) award a larger share of all certificates, whereas public 2-year institutions award most certifications in southern parts of the country.
● Full-time employees with credentials such as certificates or licenses earned more than those without such credentials.
● Non degree credential holders’ earnings are comparable to those of workers with college degrees\textsuperscript{19}

\textbf{Best Practices}

● Only some entities have leveraged articulation agreements across the state, community colleges, school districts, and industries for their program offerings in opportunity zones\textsuperscript{20}
● Additional co-curricular activities to supplement in the classroom training, which is beneficial for a variety of learners
● Utilize state tax credit programs to incentive industry partnerships for private/for profit employers for targeted hiring efforts\textsuperscript{21}
● States with existing articulation agreements across junior colleges, can leverage grants for upskilling and offer more variety of programs and online nature of education makes them more accessible\textsuperscript{22}
● Utilize the 2021-2022 annual report for apprenticeship programs for strategies on program implementation and state-wide adoption, which also includes policy recommendations\textsuperscript{23}

\textsuperscript{19} Leventoff (2018). Measuring Non-Degree Credential Attainment; United Census Bureau (2018). Statewide effort - identify credentials of value: any states are utilizing labor market information about in-demand industries and occupations, engaging with employers to learn more about their needs, and examining the outcomes of individuals who complete credentials. With this information, states can determine if a particular credential meets their definition of quality and should count towards the state's educational attainment goal
\textsuperscript{20} Colorado Community College System
\textsuperscript{21} Florida intentionally brings tech training into their opportunity zones
\textsuperscript{22} https://floridajobs.org/business-growth-and-partnerships/for-employers/find-tax-credit-and-incentive-programs/work-opportunity-tax-credit-program
Key Features for Topic 4. Development of Data and Relationships to Support ML Algorithms

- In the for-profit sector, AI/ML is used predominantly for hiring/recruitment, as well as medical decision-making;
- There is a heavier concentration of business in AI/ML in coastal states (e.g., California and New York)
- Some for-profit entities, operate by procuring unbiased datasets for their clients
- In the non-profit sector of academia, AI/ML is focused on developing new manipulation methods and evaluation criteria to determine bias
- Within the past three years, there’s been a surge of recent announcements surrounding AI/ML
- New emphasis on AI/ML in the field of healthcare

Best Practices

- Use ML to model and explain the complex or wicked phenomenon encountered in engineering as most of ML is focused on healthcare applications, and their prediction/decision making processes\(^\text{24}\)
- Greater involvement of sociocultural and environmental factors that contribute to the usage ML and AI, and the impacts on vulnerable populations
- Focused attention to the understanding of not only the evidence of bias, but the factors and methods that continually re-install bias\(^\text{25}\)
- Use ML to illicit explanatory power in addition to predictive analytics and suggest how the adoption of ML for qualitative and mixed method research could provide more accurate root cause analysis or indicate for effective areas to target for improvement
- We draw parallels for impact on behalf of the RJ&E committee in the field of AI/ML algorithms from best practices in the field of medicine and health care\(^\text{26}\)
- Develop heuristics for the field of engineering, led by specialists in engineering and social science (e.g. Engineering education ), that can be use by industry when model solutions are being implemented to assist humans in the decision-making part of the process

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\(^\text{24}\) Mhasawade (2021). Machine learning and algorithmic fairness in public and population health, discusses more of this experience

\(^\text{25}\) Cunningham and Delany (2021). Underestimation Bias and Underfitting in Machine Learning, elaborates on this initiative

\(^\text{26}\) McCradden (2020). Ethical limitations of algorithmic fairness solutions in health care machine learning
Key Features for Topic 5. Efforts to Increase the Participation of Minorities in Engineering and Technology Using Place-Based Innovation Zones

- There is more growth of place-based innovation zones in cities that have a large college/insitution presence
- Some use Meet-Up groups as a mechanism to create a support system for minorities in engineering.
- Some institutions are using NSF’s Innovation Corps (iCorps) to help them build their innovation ecosystem.

Best Practices

- Diversify investment efforts to promote equity across the state, regardless of the surrounding environmental area
- Employ policies to avoid gentrification
- Create a centralized, open access database of qualified opportunity zones
- Focus on attracting as well as retaining talent, through various initiatives that are culturally responsive
- Mandate and promote social justice with all stakeholders and levels of leadership
- Utilize an innovation hub to bring access to various communities across a state
- Encourage place-based economies and other geographically targeted economic development programs to include opportunity zones and promise zones as an example of a policy to support place-based economic development
- Bring resources back to low socioeconomic areas

28 https://edpa.org/talent/
29 https://alabamalaunchpad.com/
30 Arkansas Mobile Innovation Hubs: https://arhub.org/mobile/
31 Opportunity Zone-Related Legislation | Committee on Jobs, Economic Development, and the Economy (ca.gov)
32 Opportunity zone capital accelerator program - provides free consulting services for business seeking opportunity zone investment
   Opportunity Zone technical support grant - provides up to $10k to help communities develop opportunity zone projects
The state snapshots will provide details about programs and organizations within each state that exist to collectively promote stakeholder awareness of and engagement with programs, particularly as it relates to historically underrepresented groups and minorities for each of the RJ&E’s five topic areas. The state snapshots will designate states as either high or low activity related to the RJ&E committee’s mission. The criteria for program activity are as follows:

- State designated priority for IT, Cybersecurity, Engineering industries, training & careers
- Explicit policies to support the adoption and implementation of programs (e.g. articulation agreements between school districts, colleges, and government programs)
- State-back incentives to promote engagement of private and non-profit entities to provide jobs, training, and resources (e.g. tax credits)
- Geographical overlap/access between programs and communities from federally designated opportunity zones
- Regular program monitoring and evaluation metrics for continual improvement and accountability
Alabama

State of Engineering-related Programs Summary

$9.3b Economic Impact [estimated direct impact of tech sector]
5,469 Tech Business Establishments [firms with payroll]
$82.8k Est. median tech wage, 129% higher than median state wage
5 Institutions with ABET-accredited engineering programs
8 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

<table>
<thead>
<tr>
<th>Career Track</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX</td>
<td>2.9%</td>
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<tr>
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<td>Database, Data Science and CS</td>
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<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>2.7%</td>
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HIGH-TECH CERTIFICATION SUPPLY/DEMAND

NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

TECH WORKFORCE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Ethnicity/Male/Female</th>
<th>% of tech occupations</th>
<th>% of all occupations</th>
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<tbody>
<tr>
<td>Black/African American</td>
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<td>Hispanic/Latino</td>
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Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program

Artificial Intelligence & Machine Learning Centers & Start-Ups

Cities good for start-ups and traditional businesses

Low Socioeconomic Areas (by County)

Innovation Zones, Committees & Programs
Alaska

State of Engineering-related Programs Summary

$1.6b  Economic Impact [estimated direct impact of tech sector]
768  Tech Business Establishments [firms with payroll]
$85k  Estimated median tech wage, 71% higher than median state wage
1  Institutions with ABET-accredited engineering programs
1  Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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<td>1.4%</td>
</tr>
<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

Non-Degree Program Types for High-Tech Occupations

- Industry Certification: 28.6%
- Bootcamp Certification: 21.4%
- Academic Certificate: 50.0%

Tech Workforce Characteristics

- Black/African American
- Hispanic/Latino
- Women

Engineering Mentoring Programs

Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program

Artificial Intelligence & Machine Learning Centers & Start Ups

- Fewer than 5 locations
- 5-10 locations
- 10 or more locations

Low Socioeconomic Areas

- Below Poverty Line
- 25-34%
- 31-40%
- 41-50%
- Above Poverty Line

Innovation Zones, Communities & Programs

Cities good for start-ups and traditional businesses
Arizona

State of Engineering-related Programs Summary

$29.2b  Economic Impact  [estimated direct impact of tech sector]
11,431  Tech Business Establishments  [firms with payroll]
$86.2k  Estimated median tech wage, 115% higher than median state wage
5  Institutions with ABET-accredited engineering programs
9  Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 4.5%
IT Support Specialist 2.2%
Network Engineers, Architects & Support 2.4%
Cybersecurity, Systems Analysts, Engineers 3.4%
Database, Data Science and CS 4.3%
AI/ML, Emerging Tech, Mgmt, Other 3.5%

TECH WORKFORCE CHARACTERISTICS

Low Socioeconomic Areas (by County)

Innovation Zones, Campuses, & Programs

Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program

Artificial Intelligence & Machine Learning Centers & Start-Ups

Fewer than 5 locations
5-10 locations
10 or more locations

Non-Degree Program Types for High-Tech Occupations

Academic Certificate 55.3%
Bootsramps 2.1%
Industry Certification 41.8%
Apprenticeship 0.6%
Arkansas

State of Engineering-related Programs Summary

$3.9b Economic Impact [estimated direct impact of tech sector]
3,895 Tech Business Establishments [firms with payroll]
$71.7k Estimated median tech wage, 110% higher than median state wage
5 Institutions with ABET-accredited engineering programs
4 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 3.6%
IT Support Specialist 1.7%
Network Engineers, Architects & Support 1.6%
Cybersecurity, Systems Analysts, Engineers 2.6%
Database, Data Science and CS 2.9%
AI/ML, Emerging Tech, Mgmt, Other 3.8%

TECH WORKFORCE CHARACTERISTICS

Low Socioeconomic Areas (by County)

Innovation Zones, Communities & Programs
Cities good for start-ups and traditional businesses

Engineering Mentoring Programs
Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program

Artificial Intelligence & Machine Learning Centers & Start Ups

Certification Holders vs Openings Requesting Certification

Non-Degree Program Types for High-Tech Occupations

Bootcamps 50.0%
Academic Certificate 50.0%
California

State of Engineering-related Programs Summary

$515.6b Economic Impact [estimated direct impact of tech sector]
54,303 Tech Business Establishments [firms with payroll]
$116.7k Estimated median tech wage, 152% higher than median state wage
19 Institutions with ABET-accredited engineering programs
25 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 3.6%
IT Support Specialist 1.4%
Network Engineers, Architects & Support 1.6%
Cybersecurity, Systems Analysts, Engineers 2.3%
Database, Data Science and CS 3.0%
AI/ML, Emerging Tech, Mgmt, Other 1.5%

TECH WORKFORCE CHARACTERISTICS

Low Socioeconomic Areas (by County)
- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs
Cities good for start-ups and traditional businesses
Colorado

State of Engineering-related Programs Summary

$48.2b Economic Impact [estimated direct impact of tech sector]
16,394 Tech Business Establishments [firms with payroll]
$99.3k Estimated median tech wage, 115% higher than median state wage
7 Institutions with ABET-accredited engineering programs
11 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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TECH WORKFORCE CHARACTERISTICS

![Graph showing tech workforce characteristics by gender and race]
Connecticut

State of Engineering-related Programs Summary

$17.6b Economic Impact [estimated direct impact of tech sector]
7,338 Tech Business Establishments [firms with payroll]
$95.9k Estimated median tech wage, 90% higher than median state wage
10 Institutions with ABET-accredited engineering programs
6 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

Academic Certificate: 50.0%
Bootcamps: 27.2%
Industry Certification: 20.3%
Apprenticeship Training: 2.7%

TECH WORKFORCE CHARACTERISTICS

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<th>Gender</th>
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<td>Black/African American</td>
<td>0.5%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>0.6%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Women</td>
<td>0.8%</td>
<td>5.7%</td>
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Engineering Mentoring Programs

Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program

Artificial Intelligence & Machine Learning Centers & Start Ups

- Fewer than 5 locations
- 5-10 locations
- 10 or more locations
Delaware

State of Engineering-related Programs Summary

$3.6b  Economic Impact [estimated direct impact of tech sector]
2,729  Tech Business Establishments [firms with payroll]
$95.1k  Estimated median tech wage, 132% higher than median state wage
1  Institutions with ABET-accredited engineering programs
3  Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX  1.1%
IT Support Specialist -0.1%
Network Engineers, Architects & Support  0.0%
Cybersecurity, Systems Analysts, Engineers  0.4%
Database, Data Science and CS  0.8%
AI/ML, Emerging Tech, Mgmt, Other  1.4%

NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

LEADING HIGH-TECH CAREER TRACKS

ENGINEERING MENTORING PROGRAMS

Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program

Artificial Intelligence & Machine Learning Centers & Start-Ups

Fewer than 5 locations
5-10 locations
10 or more locations

Low Socioeconomic Areas (by County)

Cities good for start-ups and traditional businesses
District of Columbia

State of Engineering-related Programs Summary

- $9.7b Economic Impact [estimated direct impact of tech sector]
- 4,047 Tech Business Establishments [firms with payroll]
- $117.3k Estimated median tech wage, 50% higher than median state wage
- 4 Institutions with ABET-accredited engineering programs
- 4 Engineering-specific mentoring programs

**HIGH-TECH CERTIFICATION SUPPLY/DEMAND**

**NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS**

**LEADING HIGH-TECH CAREER TRACKS**

<table>
<thead>
<tr>
<th>Career Track</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX</td>
<td>4.7%</td>
</tr>
<tr>
<td>IT Support Specialist</td>
<td>2.8%</td>
</tr>
<tr>
<td>Network Engineers, Architects &amp; Support</td>
<td>2.5%</td>
</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>3.3%</td>
</tr>
<tr>
<td>Database, Data Science and CS</td>
<td>3.1%</td>
</tr>
<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

**TECH WORKFORCE CHARACTERISTICS**

- Black/African American
- Hispanic/Latino
- Women

Artificial Intelligence & Machine Learning Centers & Start Ups

Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program
Florida

State of Engineering-related Programs Summary

$70.0b Economic Impact [estimated direct impact of tech sector]
32,760 Tech Business Establishments [firms with payroll]
$79.3k Estimated median tech wage, 113% higher than median state wage
15 Institutions with ABET-accredited engineering programs
10 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Growth Rate
Software, Programmers, Devs, Web, UX 4.5%
IT Support Specialist 1.9%
Network Engineers, Architects & Support 2.2%
Cybersecurity, Systems Analysts, Engineers 3.1%
Database, Data Science and CS 3.5%
AI/ML, Emerging Tech, Mgmt, Other 3.9%

TECH WORKFORCE CHARACTERISTICS

Low Socioeconomic Areas (by County)
- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs
Cities good for start-ups and traditional businesses

Engineering Mentoring Programs
Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program

Artificial Intelligence & Machine Learning Centers & Start Ups
- Fewer than 5 locations
- 5-10 locations
- 10 or more locations
Georgia

State of Engineering-related Programs Summary

$53.9b Economic Impact [estimated direct impact of tech sector]
16,369 Tech Business Establishments [firms with payroll]
$92.0k Estimated median tech wage, 139% higher than median state wage
5 Institutions with ABET-accredited engineering programs
2 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 3.8%
IT Support Specialist 1.9%
Network Engineers, Architects & Support 1.6%
Cybersecurity, Systems Analysts, Engineers 2.5%
Database, Data Science and CS 2.9%
AI/ML, Emerging Tech, Mgmt, Other 2.1%

TECH WORKFORCE CHARACTERISTICS

Low Socioeconomic Areas

Innovation Zones, Committees & Programs

Cities good for startups and traditional businesses
Hawaii

State of Engineering-related Programs Summary

$2.7b Economic Impact [estimated direct impact of tech sector]
1,860 Tech Business Establishments [firms with payroll]
$81.6k Estimated median tech wage, 77% higher than median state wage
1 Institutions with ABET-accredited engineering programs
3 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 1.6%
IT Support Specialist -0.4%
Network Engineers, Architects & Support -0.5%
Cybersecurity, Systems Analysts, Engineers 0.5%
Database, Data Science and CS 1.3%
AI/ML, Emerging Tech, Mgmt, Other 1.8%

Low Socioeconomic Areas (by County)

Innovation Zones, Committees & Programs
Cities good for start-ups and traditional businesses
Idaho

State of Engineering-related Programs Summary

$5.7b Economic Impact [estimated direct impact of tech sector]
3,532 Tech Business Establishments [firms with payroll]
$72.7k Estimated median tech wage, 99% higher than median state wage
5 Institutions with ABET-accredited engineering programs
4 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

<table>
<thead>
<tr>
<th>Career Track</th>
<th>Growth Rate</th>
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<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX</td>
<td>5.0%</td>
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<td>Network Engineers, Architects &amp; Support</td>
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</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>3.9%</td>
</tr>
<tr>
<td>Database, Data Science and CS</td>
<td>4.3%</td>
</tr>
<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

Low Socioeconomic Areas (by County)

- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs

Cities good for start-ups and traditional businesses
Illinois

State of Engineering-related Programs Summary

$52.5b Economic Impact [estimated direct impact of tech sector]
20,457 Tech Business Establishments [firms with payroll]
$93.7k Estimated median tech wage, 116% higher than median state wage
13 Institutions with ABET-accredited engineering programs
13 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 2.2%
IT Support Specialist 0.5%
Network Engineers, Architects & Support -0.2%
Cybersecurity, Systems Analysts, Engineers 0.6%
Database, Data Science and CS 1.6%
AI/ML, Emerging Tech, Mgmt, Other 1.0%

TECH WORKFORCE CHARACTERISTICS

Growth Rate

<table>
<thead>
<tr>
<th>Occupation</th>
<th>% of tech occupations</th>
<th>% of all occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black/African Americans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td></td>
<td></td>
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<tr>
<td>Women</td>
<td></td>
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Low Socioeconomic Areas (by County)

- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs

Cities good for start-ups and traditional businesses
Indiana

State of Engineering-related Programs Summary

$14.1b Economic Impact [estimated direct impact of tech sector]
7,939 Tech Business Establishments [firms with payroll]
$76.2k Estimated median tech wage, 116% higher than median state wage
16 Institutions with ABET-accredited engineering programs
14 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 3.1%
IT Support Specialist 0.9%
Network Engineers, Architects & Support 1.0%
Cybersecurity, Systems Analysts, Engineers 1.6%
Database, Data Science and CS 2.5%
AI/ML, Emerging Tech, Mgmt, Other 2.2%

TECH WORKFORCE CHARACTERISTICS

Growth Rate

<table>
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<tr>
<th>Occupation</th>
<th>% of tech occupations</th>
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</thead>
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<td>3.1%</td>
<td></td>
</tr>
<tr>
<td>IT Support Specialist</td>
<td>0.9%</td>
<td></td>
</tr>
<tr>
<td>Network Engineers, Architects &amp; Support</td>
<td>1.0%</td>
<td></td>
</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>1.6%</td>
<td></td>
</tr>
<tr>
<td>Database, Data Science and CS</td>
<td>2.5%</td>
<td></td>
</tr>
<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>2.2%</td>
<td></td>
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</tbody>
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Low Socioeconomic Areas (by County)

- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs

Cities good for start-ups and traditional businesses
Iowa

State of Engineering-related Programs Summary

$8.6b Economic Impact [estimated direct impact of tech sector]
4,188 Tech Business Establishments [firms with payroll]
$81.8k Estimated median tech wage, 107% higher than median state wage
7 Institutions with ABET-accredited engineering programs
10 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

<table>
<thead>
<tr>
<th>Career Track</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX</td>
<td>2.4%</td>
</tr>
<tr>
<td>IT Support Specialist</td>
<td>0.5%</td>
</tr>
<tr>
<td>Network Engineers, Architects &amp; Support</td>
<td>0.6%</td>
</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>1.3%</td>
</tr>
<tr>
<td>Database, Data Science and CS</td>
<td>2.5%</td>
</tr>
<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>2.0%</td>
</tr>
</tbody>
</table>
Kansas

State of Engineering-related Programs Summary

$9.8b Economic Impact [estimated direct impact of tech sector]
4,666 Tech Business Establishments [firms with payroll]
$74.2k Est. median tech wage, 94% higher than median state wage
3 Institutions with ABET-accredited engineering programs
3 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

<table>
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<tr>
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<tr>
<td>Software, Programmers, Devs, Web, UX</td>
<td>2.2%</td>
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<tr>
<td>IT Support Specialist</td>
<td>0.4%</td>
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<tr>
<td>Network Engineers, Architects &amp; Support</td>
<td>0.0%</td>
</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>0.5%</td>
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<td>Database, Data Science and CS</td>
<td>2.4%</td>
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<td>2.3%</td>
</tr>
</tbody>
</table>

TECH WORKFORCE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Demographic</th>
<th>% of Tech Occupations</th>
<th>% of All Occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black/African American</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Women</td>
<td>Low</td>
<td>High</td>
</tr>
</tbody>
</table>

HIGH-TECH CERTIFICATION SUPPLY/DEMAND

NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

Low Socioeconomic Areas (by County)

Innovation Zones, Committees & Programs

Cities good for start-ups and traditional businesses
Kentucky

State of Engineering-related Programs Summary

- $6.8b Economic Impact [estimated direct impact of tech sector]
- 5,966 Tech Business Establishments [firms with payroll]
- $71.7k Est. median tech wage, 95% higher than median state wage
- 4 Institutions with ABET-accredited engineering programs
- 5 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

<table>
<thead>
<tr>
<th>Career Track</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX</td>
<td>3.4%</td>
</tr>
<tr>
<td>IT Support Specialist</td>
<td>0.9%</td>
</tr>
<tr>
<td>Network Engineers, Architects &amp; Support</td>
<td>1.1%</td>
</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>1.8%</td>
</tr>
<tr>
<td>Database, Data Science and CS</td>
<td>2.6%</td>
</tr>
<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

TECH WORKFORCE CHARACTERISTICS

Growth Rate:

- % of tech occupations
- % of all occupations

Low Socioeconomic Areas (by County)

- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs

- Cities good for start-ups and traditional businesses
Louisiana

State of Engineering-related Programs Summary

- $5.3b Economic Impact [estimated direct impact of tech sector]
- 4,374 Tech Business Establishments [firms with payroll]
- $69.6k Est. median tech wage, 90% higher than median state wage
- 7 Institutions with ABET-accredited engineering programs
- 2 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

<table>
<thead>
<tr>
<th>Career Track</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX</td>
<td>4.1%</td>
</tr>
<tr>
<td>IT Support Specialist</td>
<td>1.6%</td>
</tr>
<tr>
<td>Network Engineers, Architects &amp; Support</td>
<td>1.2%</td>
</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>2.5%</td>
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<tr>
<td>Database, Data Science and CS</td>
<td>3.3%</td>
</tr>
<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

TECH WORKFORCE CHARACTERISTICS

- % of tech occupations
- % of all occupations

Low Socioeconomic Areas (by County)

- 25-34% Below Poverty Line
- 35-44% Below Poverty Line
- 45-54% Below Poverty Line
- 55%+ Below Poverty Line

Innovation Zones, Communities & Proxies

Cities good for start-ups and traditional businesses
Maine

State of Engineering-related Programs Summary

- $2.6b Economic Impact [estimated direct impact of tech sector]
- 2,528 Tech Business Establishments [firms with payroll]
- $78.3k Est. median tech wage, 95% higher than median state wage
- 3 Institutions with ABET-accredited engineering programs
- 0 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

- Software, Programmers, Devs, Web, UX: 3.7%
- IT Support Specialist: 1.1%
- Network Engineers, Architects & Support: 1.3%
- Cybersecurity, Systems Analysts, Engineers: 2.1%
- Database, Data Science and CS: 3.7%
- AI/ML, Emerging Tech, Mgmt, Other: 3.0%

NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

- Industry Certification: 25.0%
- Academic Certificate: 50.0%
- Bootcamps: 25.0%

TECH WORKFORCE CHARACTERISTICS

- % of tech occupations vs % of all occupations

Low Socioeconomic Areas (by County)

- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs

Cities good for start-ups and traditional businesses
Maryland

State of Engineering-related Programs Summary

$36.4b  Economic Impact [estimated direct impact of tech sector]
12,871  Tech Business Establishments [firms with payroll]
$105.2k  Est. median tech wage, 95% higher than median state wage
9  Institutions with ABET-accredited engineering programs
7  Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX  3.4%
IT Support Specialist  1.4%
Network Engineers, Architects & Support  0.8%
Cybersecurity, Systems Analysts, Engineers  2.2%
Database, Data Science and CS  2.7%
AI/ML, Emerging Tech, Mgmt, Other  2.2%
Massachusetts

State of Engineering-related Programs Summary

$76.5b Economic Impact [estimated direct impact of tech sector]
15,380 Tech Business Establishments [firms with payroll]
$105.7k Est. median tech wage, 99% higher than median state wage
16 Institutions with ABET-accredited engineering programs
17 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

<table>
<thead>
<tr>
<th>Category</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX</td>
<td>2.6%</td>
</tr>
<tr>
<td>IT Support Specialist</td>
<td>0.7%</td>
</tr>
<tr>
<td>Network Engineers, Architects &amp; Support</td>
<td>0.9%</td>
</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>1.8%</td>
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<td>Database, Data Science and CS</td>
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<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

Tech Workforce Characteristics

<table>
<thead>
<tr>
<th>Category</th>
<th>% of tech occupations</th>
<th>% of all occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black/African American</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
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</tbody>
</table>

High-Tech Certification Supply/Demand

<table>
<thead>
<tr>
<th>Certification</th>
<th>Holders</th>
<th>Openings Requesting Certification</th>
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</thead>
<tbody>
<tr>
<td>CompTIA Security +</td>
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</tr>
<tr>
<td>Certified Information System Security Professional (CISSP)</td>
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<td></td>
</tr>
<tr>
<td>Global Information Assurance Certification (GIAC)</td>
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<td></td>
</tr>
<tr>
<td>Certified Information Systems Auditor (CISA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified Information Security Manager (CISM)</td>
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<td></td>
</tr>
<tr>
<td>Certified Information Privacy Professional (CIPP)</td>
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</tr>
</tbody>
</table>

Non-Degree Program Types for High-Tech Occupations vs.
Michigan

State of Engineering-related Programs Summary

- $22.8b Economic Impact [estimated direct impact of tech sector]
- 11,453 Tech Business Establishments [firms with payroll]
- $81.1k Est. median tech wage, 99% higher than median state wage
- 20 Institutions with ABET-accredited engineering programs
- 17 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

TECH WORKFORCE CHARACTERISTICS

- % of tech occupations
- % of all occupations
Minnesota

State of Engineering-related Programs Summary

$29.1b Economic Impact [estimated direct impact of tech sector]
10,291 Tech Business Establishments [firms with payroll]
$94.7k Est. median tech wage, 106% higher than median state wage
8 Institutions with ABET-accredited engineering programs
6 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

- Industry Certification: 39.4%
- Academic Certificate: 35.1%
- Bootcamps: 35.5%

TECH WORKFORCE CHARACTERISTICS

- Black/African American
- Hispanic/Latino
- Women

Low Socioeconomic Areas (by County)

- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs

Cities good for start-ups and traditional businesses

Artificial Intelligence & Machine Learning Centers & Start-Ups

- Fewer than 5 locations
- 5-10 locations
- 10 or more locations

Engineering Mentoring Programs

Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program
Mississippi

State of Engineering-related Programs Summary

$3.3b Economic Impact [estimated direct impact of tech sector]
10,088 Tech Business Establishments [firms with payroll]
$66.3k Est. median tech wage, 103% higher than median state wage
5 Institutions with ABET-accredited engineering programs
3 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 4.1%
IT Support Specialist 2.1%
Network Engineers, Architects & Support 0.8%
Cybersecurity, Systems Analysts, Engineers 2.2%
Database, Data Science and CS 2.5%
AI/ML, Emerging Tech, Mgmt, Other 2.5%
Missouri

State of Engineering-related Programs Summary

- $21.6b Economic Impact [estimated direct impact of tech sector]
- 9,356 Tech Business Establishments [firms with payroll]
- $80.8k Est. median tech wage, 110% higher than median state wage
- 11 Institutions with ABET-accredited engineering programs
- 12 Engineering-specific mentoring programs

<table>
<thead>
<tr>
<th>LEADING HIGH-TECH CAREER TRACKS</th>
<th>TECH WORKFORCE CHARACTERISTICS</th>
</tr>
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<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX 3.5%</td>
<td>% of tech occupations % of all occupations</td>
</tr>
<tr>
<td>IT Support Specialist 1.1%</td>
<td></td>
</tr>
<tr>
<td>Network Engineers, Architects &amp; Support 0.8%</td>
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</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers 2.0%</td>
<td></td>
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<td>Database, Data Science and CS 1.7%</td>
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</tr>
<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other 2.1%</td>
<td></td>
</tr>
</tbody>
</table>

![HIGH-TECH CERTIFICATION SUPPLY/DEMAND]

![NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS]

![Low Socioeconomic Areas (by County)]

![Innovation Zones, Committees & Programs]
Montana

State of Engineering-related Programs Summary

$2.0b Economic Impact [estimated direct impact of tech sector]
2,338 Tech Business Establishments [firms with payroll]
$67.2k Est. median tech wage, 81% higher than median state wage
3 Institutions with ABET-accredited engineering programs
3 Engineering-specific mentoring programs

HIGH-TECH CERTIFICATION SUPPLY/DEMAND

LEADING HIGH-TECH CAREER TRACKS

Growth Rate

Software, Programmers, Devs, Web, UX 3.9%
IT Support Specialist 1.0%
Network Engineers, Architects & Support 0.8%
Cybersecurity, Systems Analysts, Engineers 3.3%
Database, Data Science and CS 3.8%
AI/ML, Emerging Tech, Mgmt, Other 2.9%
Nebraska

State of Engineering-related Programs Summary

$6.6b  Economic Impact [estimated direct impact of tech sector]
3,241  Tech Business Establishments [firms with payroll]
$81.0k Est. median tech wage, 106% higher than median state wage
2  Institutions with ABET-accredited engineering programs
2  Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 3.4%
IT Support Specialist 1.5%
Network Engineers, Architects & Support 0.7%
Cybersecurity, Systems Analysts, Engineers 1.3%
Database, Data Science and CS 1.6%
AI/ML, Emerging Tech, Mgmt, Other 1.0%

TECH WORKFORCE CHARACTERISTICS

Low Socioeconomic Areas (by ZIP Code)
- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs
Cities good for start-ups and traditional businesses

Artificial Intelligence & Machine Learning Centers & Start-Ups
- Fewer than 5 locations
- 5-10 locations
- 10 or more locations

Engineering Mentoring Programs
Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program

High-Tech Certification Supply/Demand

Non-Degree Program Types for High-Tech Occupations

Academic Certificate 33.3%
Industry Certification 66.7%
Nevada

State of Engineering-related Programs Summary

$7.8b Economic Impact [estimated direct impact of tech sector]
4,220 Tech Business Establishments [firms with payroll]
$75.9k Est. median tech wage, 97% higher than median state wage
2 Institutions with ABET-accredited engineering programs
0 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Growth Rate
- Software, Programmers, Devs, Web, UX: 4.8%
- IT Support Specialist: 1.2%
- Network Engineers, Architects & Support: 2.5%
- Cybersecurity, Systems Analysts, Engineers: 4.1%
- Database, Data Science and CS: 3.2%
- AI/ML, Emerging Tech, Mgmt, Other: 3.2%

TECH WORKFORCE CHARACTERISTICS
- % of tech occupations vs. % of all occupations
- Black/African American
- Hispanic/Latino
- Women

Engineering Mentoring Programs
- Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program

Artificial Intelligence & Machine Learning Centers & Start-Ups
- Fewer than 5 locations
- 5-10 locations
- 10 or more locations

Low Socioeconomic Areas (by County)

Innovation Zones, Committees & Programs
- Cities good for start-ups and traditional businesses
New Hampshire

State of Engineering-related Programs Summary

$10.8b Economic Impact [estimated direct impact of tech sector]
4,837 Tech Business Establishments [firms with payroll]
$94.3k Est. median tech wage, 114% higher than median state wage
3 Institutions with ABET-accredited engineering programs
1 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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TECH WORKFORCE CHARACTERISTICS

- % of tech occupations
- % of all occupations

Low Socioeconomic Areas (by County)

- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs

Cities good for start-ups and traditional businesses
New Jersey

State of Engineering-related Programs Summary

$48.0b  Economic Impact [estimated direct impact of tech sector]
13,986  Tech Business Establishments [firms with payroll]
$104.6k  Est. median tech wage, 119% higher than median state wage
8  Institutions with ABET-accredited engineering programs
7  Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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<td>1.1%</td>
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</tbody>
</table>
New Mexico

State of Engineering-related Programs Summary

$4.6b Economic Impact [estimated direct impact of tech sector]
2,590 Tech Business Establishments [firms with payroll]
$76.8k Est. median tech wage, 109% higher than median state wage
4 Institutions with ABET-accredited engineering programs
5 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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TECH WORKFORCE CHARACTERISTICS

Growth Rate of Black/African American, Hispanic/Latino, and Women compared to tech occupations and all occupations.

Engineering Mentoring Programs

Locations where there is an ABET-accredited engineering-specific mentoring program.

Artificial Intelligence & Machine Learning, Startups

- Fewer than 5 locations
- 5-10 locations
- 10 or more locations

Low Socioeconomic Areas

- 25-36% Below Poverty Line
- 31-40% Below Poverty Line
- 41-56% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Communities & Programs

Cities good for startups and traditional businesses.
New York

State of Engineering-related Programs Summary

$140.4b  Economic Impact [estimated direct impact of tech sector]
24,587    Tech Business Establishments [firms with payroll]
$98.9k Est. median tech wage, 103% higher than median state wage
29    Institutions with ABET-accredited engineering programs
22    Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Growth Rate

Software, Programmers, Devs, Web, UX 3.3%
IT Support Specialist 0.9%
Network Engineers, Architects & Support 0.7%
Cybersecurity, Systems Analysts, Engineers 1.6%
Database, Data Science and CS 2.6%
AI/ML, Emerging Tech, Mgmt, Other 3.2%

TECH WORKFORCE CHARACTERISTICS

Low Socioeconomic Areas (by County)

Innovation Zones, Committees & Programs

Cities good for start-ups and traditional businesses

Engineering Mentoring Programs

Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentor program
North Carolina

State of Engineering-related Programs Summary

- $44.7b Economic Impact [estimated direct impact of tech sector]
- 17,261 Tech Business Establishments [firms with payroll]
- $89.4k Est. median tech wage, 132% higher than median state wage
- 10 Institutions with ABET-accredited engineering programs
- 10 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX</td>
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<td>4.0%</td>
</tr>
</tbody>
</table>
North Dakota

State of Engineering-related Programs Summary

- $1.8b Economic Impact [estimated direct impact of tech sector]
- 984 Tech Business Establishments [firms with payroll]
- $71.4k Est. median tech wage, 64% higher than median state wage
- 3 Institutions with ABET-accredited engineering programs
- 0 Engineering-specific mentoring programs

**LEADING HIGH-TECH CAREER TRACKS**

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<td>0.4%</td>
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</table>

**NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS**

- Industry Certification: 20.0%
- Bootcamps: 15.0%

**TECH WORKFORCE CHARACTERISTICS**

- % of tech occupations
- % of all occupations

- Black/African American
- Hispanic/Latino
- Women
Ohio

State of Engineering-related Programs Summary

$29.4b Economic Impact [estimated direct impact of tech sector]
15,700 Tech Business Establishments [firms with payroll]
$83.2k Est. median tech wage, 107% higher than median state wage
20 Institutions with ABET-accredited engineering programs
8 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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<tr>
<td>Database, Data Science and CS</td>
<td>1.8%</td>
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<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>1.3%</td>
</tr>
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</table>

TECH WORKFORCE CHARACTERISTICS

- % of tech occupations
- % of all occupations

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HIGH-TECH CERTIFICATION SUPPLY/DEMAND

NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

- Industry Certification
- Academic Certificate
- Bootcamps
Oklahoma

State of Engineering-related Programs Summary
$22.8b Economic Impact [estimated direct impact of tech sector]
11,453 Tech Business Establishments [firms with payroll]
$81.1k Est. median tech wage, 99% higher than median state wage
6 Institutions with ABET-accredited engineering programs
11 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Growth Rate
- Software, Programmers, Devs, Web, UX: 2.4%
- IT Support Specialist: -0.2%
- Network Engineers, Architects & Support: -0.2%
- Cybersecurity, Systems Analysts, Engineers: 0.9%
- Database, Data Science and CS: 0.8%
- AI/ML, Emerging Tech, Mgmt, Other: 1.7%

TECH WORKFORCE CHARACTERISTICS

Low Socioeconomic Areas (by County)

Innovation Zones, Committees & Programs
Cities good for start-ups and traditional businesses
Oregon

State of Engineering-related Programs Summary

$25.3b Economic Impact [estimated direct impact of tech sector]
7,284 Tech Business Establishments [firms with payroll]
$90.6k Est.median tech wage, 110% higher than median state wage
5 Institutions with ABET-accredited engineering programs
0 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

**Growth Rate**

- Software, Programmers, Devs, Web, UX: 3.4%
- IT Support Specialist: 2.0%
- Network Engineers, Architects & Support: 1.6%
- Cybersecurity, Systems Analysts, Engineers: 2.5%
- Database, Data Science and CS: 3.3%
- AI/ML, Emerging Tech, Mgmt, Other: 2.6%

TECH WORKFORCE CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th>% of tech occupations</th>
<th>% of all occupations</th>
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<tbody>
<tr>
<td>Black/African American</td>
<td></td>
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<tr>
<td>Hispanic/Latino</td>
<td></td>
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<tr>
<td>Women</td>
<td></td>
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</tr>
</tbody>
</table>
Pennsylvania

State of Engineering-related Programs Summary

$47.4b  Estimated direct impact of tech sector
15,721  Tech Business Establishments [firms with payroll]
$85.9k  Est. median tech wage, 105% higher than median state wage
32  Institutions with ABET-accredited engineering programs
28  Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX  3.0%
IT Support Specialist  0.6%
Network Engineers, Architects & Support  0.8%
Cybersecurity, Systems Analysts, Engineers  1.5%
Database, Data Science and CS  2.1%
AI/ML, Emerging Tech, Mgmt, Other  1.2%

TECH WORKFORCE CHARACTERISTICS

% of tech occupations  % of all occupations

Low Socioeconomic Areas (by County)

Cities good for start-ups and traditional businesses
Rhode Island

State of Engineering-related Programs Summary

- **$3.5b** Economic Impact [estimated direct impact of tech sector]
- **2,854** Tech Business Establishments [firms with payroll]
- **$90.7k** Est. median tech wage, 93% higher than median state wage
- **3** Institutions with ABET-accredited engineering programs
- **1** Engineering-specific mentoring programs

**LEADING HIGH-TECH CAREER TRACKS**

- **Software, Programmers, Devs, Web, UX** 3.0%
- **IT Support Specialist** 1.6%
- **Network Engineers, Architects & Support** 0.8%
- **Cybersecurity, Systems Analysts, Engineers** 1.9%
- **Database, Data Science and CS** 2.3%
- **AI/ML, Emerging Tech, Mgmt, Other** 1.8%

**HIGH-TECH CERTIFICATION SUPPLY/DEMAND**

**NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS**

**TECH WORKFORCE CHARACTERISTICS**

- **Growth Rate**
  - % of tech occupations
  - % of all occupations

- **Black/African American**
- **Hispanic/Latino**
- **Women**

**Low-Socioeconomic Areas (by County)**

- **25-30% Below Poverty Line**
- **31-40% Below Poverty Line**
- **41-50% Below Poverty Line**
- **51%+ Below Poverty Line**

**Innovation Zones, Committees & Programs**

Cities good for start-ups and traditional businesses

---

[Map showing locations of engineering mentoring programs and innovation zones]
South Carolina

State of Engineering-related Programs Summary

$11.0b  Economic Impact [estimated direct impact of tech sector]
7,720  Tech Business Establishments [firms with payroll]
$73.8k  Est.median tech wage, 105% higher than median state wage
9  Institutions with ABET-accredited engineering programs
4  Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX  4.9%
IT Support Specialist  1.8%
Network Engineers, Architects & Support  1.9%
Cybersecurity, Systems Analysts, Engineers  2.3%
Database, Data Science and CS  4.0%
AI/ML, Emerging Tech, Mgmt, Other  3.6%
South Dakota

State of Engineering-related Programs Summary

- $1.9b Economic Impact [estimated direct impact of tech sector]
- 1,468 Tech Business Establishments [firms with payroll]
- $67.2k Est.median tech wage, 129% higher than median state wage
- 2 Institutions with ABET-accredited engineering programs
- 0 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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HIGH-TECH CERTIFICATION SUPPLY/DEMAND

<table>
<thead>
<tr>
<th>Certification</th>
<th>Supply</th>
<th>Demand</th>
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</thead>
<tbody>
<tr>
<td>CompTIA Security</td>
<td>100</td>
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</tr>
<tr>
<td>Certified Information System Security</td>
<td>200</td>
<td>150</td>
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<tr>
<td>Global Information Assurance Certification (GIAC)</td>
<td>200</td>
<td>150</td>
</tr>
<tr>
<td>Certified Information Systems Auditor (CISA)</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>Certified Information Security Manager (CISM)</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Certified Information Privacy Protection (CIPP)</td>
<td>50</td>
<td>25</td>
</tr>
</tbody>
</table>

NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

- Academic Certificate: 63.1%
- Bootcamps: 36.9%

TECH WORKFORCE CHARACTERISTICS

- % of tech occupations vs % of all occupations

Low Socioeconomic Areas (by County)

- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs

Cities good for start-ups and traditional businesses
Tennessee

State of Engineering-related Programs Summary

$15.2b Economic Impact [estimated direct impact of tech sector]
10,085 Tech Business Establishments [firms with payroll]
$75.1k Est.median tech wage, 100% higher than median state wage
13 Institutions with ABET-accredited engineering programs
3 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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TECH WORKFORCE CHARACTERISTICS

Low Socioeconomic Areas (by County)

- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

Innovation Zones, Committees & Programs

Cities good for start-ups and traditional businesses
Texas

State of Engineering-related Programs Summary

$142.8b Economic Impact [estimated direct impact of tech sector]
39,299 Tech Business Establishment [firms with payroll]
$91.8k Est. median tech wage, 133% higher than state median wage
38 Institutions with ABET-accredited engineering programs
39 Engineering-specific mentoring programs (university-affiliated)

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 4.6%
IT Support Specialist 2.4%
Network Engineers, Architects & Support 2.1%
Cybersecurity, Systems Analysts, Engineers 3.0%
Database, Data Science and CS 3.7%
AI/ML, Emerging Tech, Mgmt, Other 3.2%
State of Engineering-related Programs Summary

$19.0b Economic Impact [estimated direct impact of tech sector]
7,518 Tech Business Establishments [firms with payroll]
$82.5k Est. median tech wage, 109% higher than median state wage
6 Institutions with ABET-accredited engineering programs
3 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 5.0%
IT Support Specialist 2.9%
Network Engineers, Architects & Support 3.7%
Cybersecurity, Systems Analysts, Engineers 5.4%
Database, Data Science and CS 3.8%
AI/ML, Emerging Tech, Mgmt, Other 2.9%

TECH WORKFORCE CHARACTERISTICS

Growth Rate

% of tech occupations % of all occupations

Black/African American
Hispanic/Latino
Women

HIGH-TECH CERTIFICATION SUPPLY/DEMAND

CERTIFICATION HOLDERS OPENINGS REQUESTING CERTIFICATION

COMP TIA Security +
Certified Information Systems Security Professional (CISSP)
Global Information Assurance Certification (GIAC)
Certified Information Systems Auditor (CISA)
Certified Information Security Manager (CISM)
Certified Information Privacy Professional (CIPP)

NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

Academic Certificates 16.7%
Bootcamps 16.5%

Industry Certification 64.3%
Vermont

State of Engineering-related Programs Summary

$2.3b Economic Impact [estimated direct impact of tech sector]
1,938 Tech Business Establishments [firms with payroll]
$76.9k Est.median tech wage, 81% higher than median state wage
2 Institutions with ABET-accredited engineering programs
1 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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<tr>
<td>Network Engineers, Architects &amp; Support</td>
<td>0.8%</td>
</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>2.4%</td>
</tr>
<tr>
<td>Database, Data Science and CS</td>
<td>2.5%</td>
</tr>
<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

TECH WORKFORCE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>% of tech occupations</th>
<th>% of all occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black/African American</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HIGH-TECH CERTIFICATION SUPPLY/DEMAND

<table>
<thead>
<tr>
<th>Certification</th>
<th>Certification Holders</th>
<th>Openings Requesting Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CompTIA Security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified Information Security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified Information Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Information Assurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified Information Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified Information Security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Certified Information Privacy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

<table>
<thead>
<tr>
<th>Program Type</th>
<th>% of tech occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Certification</td>
<td>20.0%</td>
</tr>
<tr>
<td>Academic Certificates</td>
<td>20.0%</td>
</tr>
<tr>
<td>Bootcamps</td>
<td>60.0%</td>
</tr>
</tbody>
</table>

Engineering Mentoring Programs

Low Socioeconomic Areas

Innovation Zones

Cities good for startups and traditional businesses
Virginia

State of Engineering-related Programs Summary

$57.8b Economic Impact [estimated direct impact of tech sector]
20,600 Tech Business Establishments [firms with payroll]
$105k Est. median tech wage, 136% higher than median state wage
15 Institutions with ABET-accredited engineering programs
7 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

<table>
<thead>
<tr>
<th>Track</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX</td>
<td>3.0%</td>
</tr>
<tr>
<td>IT Support Specialist</td>
<td>1.9%</td>
</tr>
<tr>
<td>Network Engineers, Architects &amp; Support</td>
<td>1.0%</td>
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<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>2.2%</td>
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HIGH-TECH CERTIFICATION SUPPLY/DEMAND

NON-DEGREE PROGRAM TYPES FOR HIGH-TECH OCCUPATIONS

LEADING HIGH-TECH CAREER TRACKS

TECH WORKFORCE CHARACTERISTICS

57
Washington

State of Engineering-related Programs Summary

$127.8b Economic Impact [estimated direct impact of tech sector]
15,366 Tech Business Establishments [firms with payroll]
$124.6k Est.median tech wage, 147% higher than median state wage
8 Institutions with ABET-accredited engineering programs
8 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

<table>
<thead>
<tr>
<th>Career Track</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software, Programmers, Devs, Web, UX</td>
<td>3.2%</td>
</tr>
<tr>
<td>IT Support Specialist</td>
<td>2.0%</td>
</tr>
<tr>
<td>Network Engineers, Architects &amp; Support</td>
<td>1.7%</td>
</tr>
<tr>
<td>Cybersecurity, Systems Analysts, Engineers</td>
<td>1.9%</td>
</tr>
<tr>
<td>Database, Data Science and CS</td>
<td>3.2%</td>
</tr>
<tr>
<td>AI/ML, Emerging Tech, Mgmt, Other</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

TECH WORKFORCE CHARACTERISTICS

- % of tech occupations
- % of all occupations

58
West Virginia

State of Engineering-related Programs Summary

$1.9b  Economic Impact [estimated direct impact of tech sector]
2,026  Tech Business Establishments [firms with payroll]
$69.5k  Est. median tech wage, 129% higher than median state wage
3  Institutions with ABET-accredited engineering programs
1  Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX  5.1%
IT Support Specialist  1.0%
Network Engineers, Architects & Support  1.1%
Cybersecurity, Systems Analysts, Engineers  3.3%
Database, Data Science and CS  2.7%
AI/ML, Emerging Tech, Mgmt, Other  2.2%
Wisconsin

State of Engineering-related Programs Summary

$19.7b Economic Impact [estimated direct impact of tech sector]
7,733 Tech Business Establishments [firms with payroll]
$80.0k Est. median tech wage, 129% higher than median state wage
9 Institutions with ABET-accredited engineering programs
1 Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

Software, Programmers, Devs, Web, UX 2.3%
IT Support Specialist 1.0%
Network Engineers, Architects & Support 0.5%
Cybersecurity, Systems Analysts, Engineers 1.0%
Database, Data Science and CS 2.1%
AI/ML, Emerging Tech, Mgmt, Other 2.1%

TECH WORKFORCE CHARACTERISTICS

Growth Rate

<table>
<thead>
<tr>
<th>Career Track</th>
<th>% of tech occupations</th>
<th>% of all occupations</th>
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<tbody>
<tr>
<td>25-30% Below Poverty Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-40% Below Poverty Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41-50% Below Poverty Line</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51%+ Below Poverty Line</td>
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Low Socioeconomic Areas (by County)

Artificial Intelligence & Machine Learning Centers & Start-Ups

Less than 5 locations
5-10 locations
10 or more locations

Innovation Zones, Committees & Programs

Cities good for startups and traditional businesses
Wyoming

State of Engineering-related Programs Summary

$0.9b  Economic Impact [estimated direct impact of tech sector]
917  Tech Business Establishments [firms with payroll]
$64.1k  Est.median tech wage, 5% higher than median state wage
1  Institutions with ABET-accredited engineering programs
2  Engineering-specific mentoring programs

LEADING HIGH-TECH CAREER TRACKS

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TECH WORKFORCE CHARACTERISTICS

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LOW SOCIOECONOMIC AREAS BY COUNTY

- 25-30% Below Poverty Line
- 31-40% Below Poverty Line
- 41-50% Below Poverty Line
- 51%+ Below Poverty Line

INNOVATION ZONES, CONCENTRATIONS & PROGRAMS

Cities good for start-ups and traditional businesses

ENGINEERING MENTORING PROGRAMS

Locations where there is at least 1 ABET-accredited institution with an engineering-specific mentoring program