



# Workforce Development and Diversity, Equity, and Inclusion in the Microelectronics Industry

**SEMI Foundation**  
**Michelle Williams, Deputy Director**  
[mwilliams@semi.org](mailto:mwilliams@semi.org)



# Industry Workforce Development Challenges

- Invisible industry
- Image of industry
- Greying workforce
- Great resignation
- Diversity
- Pathways to hire





## Diverse teams lead to better outcomes...

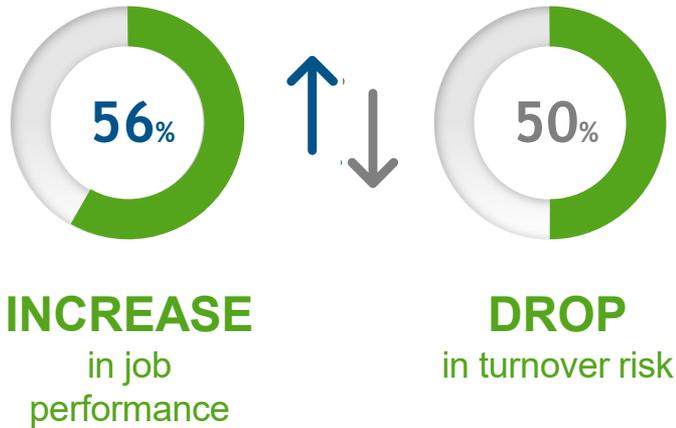
**75%** Of organizations with frontline decision-making teams reflecting a diverse and inclusive culture will exceed their financial targets  
- *Gartner*

**+33%** According to a 2018 study, ethnic and cultural diversity resulted in a 33% increase in performance  
- *McKinsey*

**x2** Among groups where original members didn't know the answer, adding an outsider versus an insider actually doubled their chance of arriving at the correct solution  
- *Harvard Business Review*

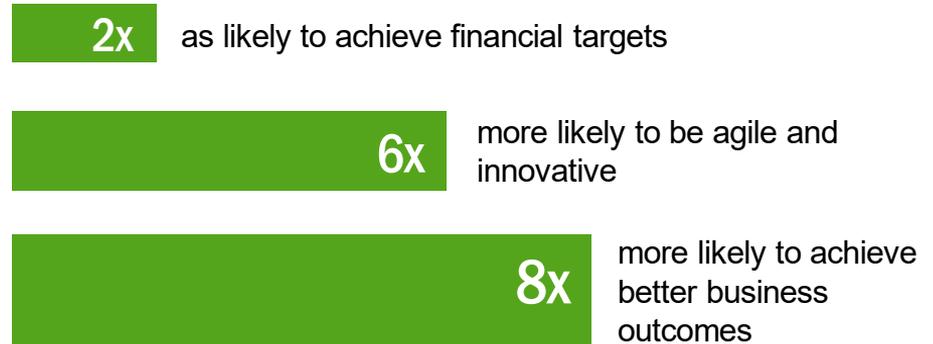
# ... and inclusion benefits everyone

High feeling of belonging was linked to...



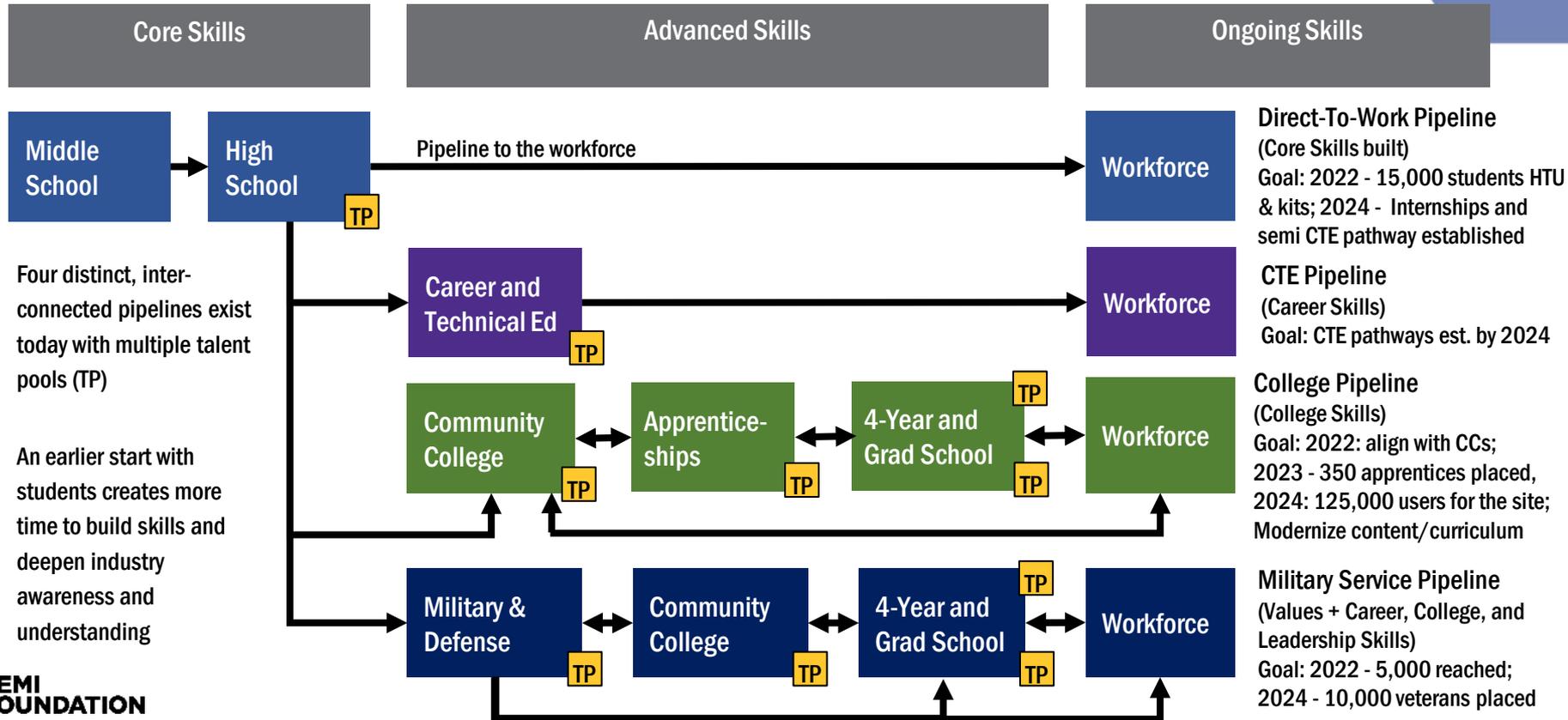
Source: HBR, 2019

Organizations with inclusive cultures are...



Source: *The diversity and inclusion revolution: Eight powerful truths*: Deloitte Review Issue 22, Deloitte Insights, January 22, 2018

# The Workforce Ecosystem - Talent Pathways, Pipelines and Pools



# Building a strong, well-positioned portfolio



## Delivering

Convening national and global partners, shaping public policy, raising industry awareness, supporting trainings and education, expanding the workforce pipeline

## Raising

Raising profile of the industry's workforce needs with testimony to Congress, advising on workforce legislation, co-chairing national coalitions, and receiving state and federal funding

## Growing

Dramatically expanding programs for women, veterans, people of color, and others throughout the workforce pipeline



# Industry Image and Awareness Campaign

semi  
Careers that propel the world forward

BY JOB PATTERNS | ABOUT SEMI | ALL THE CAREERS | EDUCATION | COMPANIES HIRING

Powered by Semiconductors

selfieing

That Instagram, FB, Snapchat, Tik Tok, YouTube, Pinterest, or LinkedIn photo or video would not be possible without semis.

WATCH THE VIDEO

EXPLORE THE SEMICONDUCTOR CAREERS THAT MAKE A DIFFERENCE

**Be a part of an industry propelling the world forward**

<p><b>WE HAVE YOUR BACK</b></p> <p>We can help you with education, financial aid, companies that are hiring, and where to start.</p> <p><b>READ RESOURCES</b></p>	<p><b>FLOVE</b></p> <p>Pick your favorite things</p> <ul style="list-style-type: none"> <li>Figuring out a career</li> <li>Leading a Team</li> <li>Reading and fixing things</li> <li>Believing the world</li> <li>Working with my hands</li> <li>Playing with Members</li> <li>Innovating and learning</li> <li>Helping people</li> <li>Working by myself</li> <li>Getting software</li> <li>Helping others and mentoring</li> <li>Try out lots of ideas</li> <li>Being Creative</li> <li>Traveling</li> </ul> <p><b>START MY MATCH</b></p>	<p><b>IT'S NOT ALL BUNNY SUITS</b></p> <p>There are all types of jobs from HR to technical, to mathematical, to project management, to engineering.</p> <p><b>SHOW ME THE CAREERS</b></p>
<p><b>I WAS IN THE MILITARY</b></p> <p>A lot of veterans of the military choose to join the Semiconductor industry. Many of your skills and interests match perfectly.</p> <p><b>MILITARY TO SEMI JOBS</b></p>		<p><b>WE ARE SAVING THE PLANET</b></p> <p>Semiconductor's are at the heart of sustainability, greening of our planet, and giving back.</p> <p><b>HOW SEMI'S MAKE A DIFFERENCE</b></p>



# Image and Diversity efforts make progress



SEMI Stories: more than 1 million students engaged!

## SEMI Stories Videos

- Created with Tiggbee, our video partner
- Feature veterans, women, and other professionals
- 1,067,381 viewer participants
- 80% youth of color
- 49% female

### HEAR FROM A VETERAN

Katie Maloney of Edwards Vacuum discusses her journey from high school, to college, to the U.S. Navy, to the semiconductor industry. Learn how the microelectronics industry provides opportunities for growth and success.



**Senior Public Relations  
Manager @ Lam Research**



**Facility Maintenance  
Technician @ TEL**



# SEMI Career and Apprenticeship Network

## Expand industry participation

Build industry-led workforce development networks across the U.S. Expand access and adoption of apprenticeships to employ a wide diversity of people in rewarding roles and are part of talent strategy in top markets

## Recruit more people of color and women into the industry

Partner with K-12 school districts, community colleges, workforce development boards, government agencies, military programs, community-based organizations

Mobilize their networks and resources for program recruitment and retention

## Launch a national apprenticeship network and model

Create a competency-based program that includes professional and technical skills for high-demand jobs identified by companies

Promote SCAN through SEMI's Industry Image and Awareness Campaign

Pilot in key regions; scale nationwide.

## Provide stackable industry credentials recognized nationwide

Improve the long-term career opportunities, pathways to management, and overall industry retention for graduates

**25 founding member companies**

**Dozens of workforce partners**

**15+ colleges and universities**

**Interest from multiple states**

**Testimony to Congress**

**\$1M CAI grant awarded**

**\$1.5M Michigan grant awarded**

**Next regions: AZ, TX, OH?**

**Media campaign**



**SEMI**  
**VetWorks**

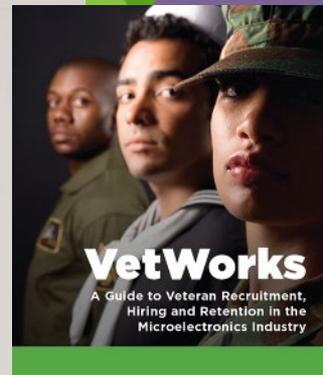




## SEMI VetWorks

Tapping a significant portion of the **200K/year** transitioning US military veterans to our industry by:

- Industry Guidebook
- Partnering with Heroes MAKE America – a DoD approved Skillbridge program
- Providing early access to resumes for SEMI members
- Collaboration with GEN Funk and Army TRADOC (Training and Doctrine Command) on outreach to nationwide TAP (Transition Assistance) offices



5,000 vets reached in 2022

VetWorks Guide published

Events – Heroes Connect, annual panel at SEMICON West

Resume-sharing with member companies

Curriculum share from TEL and potentially other members

Crosswalk built from Image and Awareness site

SEMI  
University



**SEMI**  
**University**



# High Tech U



Enable experiential learning  
across K-12



Increase industry presence &  
visibility

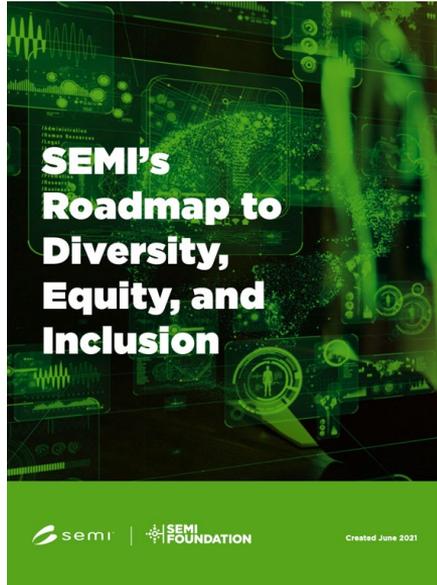


Scalable impact





# Diversity, Equity, and Inclusion Resources



SEMI is the broadest tech-focused industry association in the world, providing services and support for more than 2,400 microelectronics companies worldwide. Part of our work is to support the industry in building more equitable and just workplaces, particularly as we continue to navigate the effects of COVID-19.

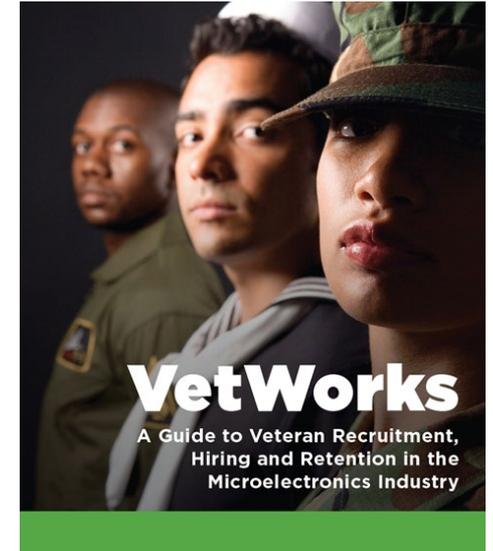
Even before the pandemic, our industry faced a critical shortage of workers to fill all levels of sector jobs. It is with this in mind that SEMI is focusing on numerous initiatives to expand the workforce pipelines.

Our industry faces serious equity issues. There are long-standing practices that contribute to inequities across our sector. This is hurting our companies, and our industry. Inclusive workplaces tend to have higher retention rates and better recruitment rates, and companies with diverse leadership are 50%

more likely to outperform their peers. While this lack of diversity undercuts our industry's capacity for innovation, creativity, and productivity, it is, more importantly, unjust. It is time for the microelectronics sector to acknowledge the disparities and to redesign our systems and practices to create a more equitable future for our industry.

To that end, we have created this Diversity, Equity, and Inclusion (DEI) Toolkit, which is a companion piece to SEMI's Roadmap to DEI. The Roadmap is an in-depth DEI framework and guide derived from resources in this toolkit and includes specific initiatives and activities that will further our own DEI journey. It is a resource for any company to adopt and employ.

This Toolkit is a list of assessments, resources, and research designed to illuminate current thinking and practices in DEI. It also includes SEMI's DEI





# Partnership with American Semiconductor Academy Initiative



**American Semiconductor Academy (ASA)**  
200+ Universities and Colleges



400+ U.S. Corporate Members spanning the microelectronics ecosystem

## Academia

Rigorous degree-oriented education

Broad and diverse network of universities / community colleges

Comprehensive curricula spanning multiple disciplines and degree levels

Facilities for hands-on training

Government support of research and education programs – driving innovation

**Outreach and Diversity, Equity, and Inclusion (DEI) initiatives**

## Industry

Rewarding professional careers

Deep industry connections

Complementary workforce training initiatives and expertise – non-degree continuing education

Government connections

Proven ability to effectively administer U.S. federal grants

**Three workshops completed**

**Countless ideas in partnership**

**Joint RFI submitted re: WFD**

**Community college workshop**

**Governing Council includes ASA and SEMI representatives**



**National Semiconductor  
Technology Center  
(NSTC)**

**National Advanced  
Packaging Manufacturing  
Program (NAPMP)**

- **100+ businesses, startups, universities,  
national labs, and nonprofits**

**SEMI Foundation providing leadership on Workforce Development streams**



**Thank you!**

**SEMI Foundation**  
**Michelle Williams, Deputy Director**  
**[mwilliams@semi.org](mailto:mwilliams@semi.org)**