



*Supporting Community Colleges
Engagement with Military Bases to
Build MNT Workforce*



Northeast Advanced
Technological Education Center

Regional Center for Semiconductor and Nanotechnology Education





Kate Alcott
Associate Director, NEATEC
Veteran Liaison, MNT-EC

**Virtual meetings are basically
modern seances.**

"Elizabeth are you here?"

"Make a sound if you can hear us."

"Is anyone else with you?"

"We can't see you. Can you hear us?"

*Gore
Mann*

THE PLAN:



WHO

Education and training to support
the semiconductor and nanotech
industries of New York State and
Western New England



Northeast Advanced
Technological Education Center

Regional Center for Semiconductor and Nanotechnology Education

NEATEC TEAM



Bob Geer, PI



Abe Michelen,
Managing Director



Elaine Garrett, STEM
Outreach





SUNY Polytechnic Albany Campus- College of Nanoscale Science & Engineering.



1.65 million square foot NanoTech complex. 80,000 sq ft of fabrication space, with > 120 wafer processing & inline metrology tools.



SUNY Polytechnic Utica Campus

Danfoss: Silicon-carbide power module production plant

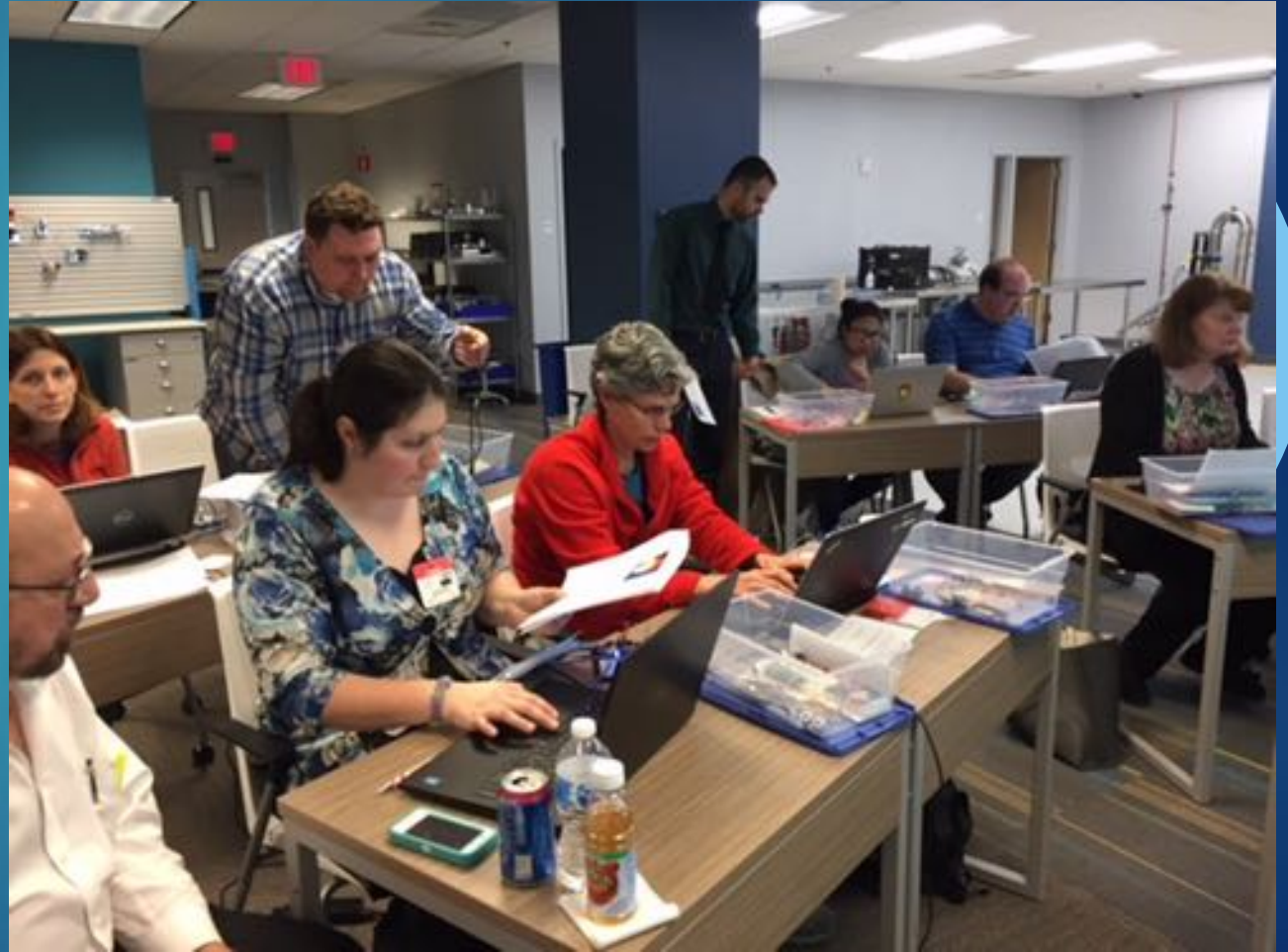


Cree - \$1B Silicon carbide fab under construction

PROFESSIONAL DEVELOPMENT WORKSHOPS – CC FACULTY



STEM OUTREACH:



NIST INTERNSHIPS



Gaithersburg, MD

Employer Training- Onboarding/Upskilling Technicians



GlobalFoundries Malta, NY

Refugee Outreach- FIRST Robotics



NEATEC & SEMI Developing SEMI Semiconductor Workforce Certification for Technician Education Programs

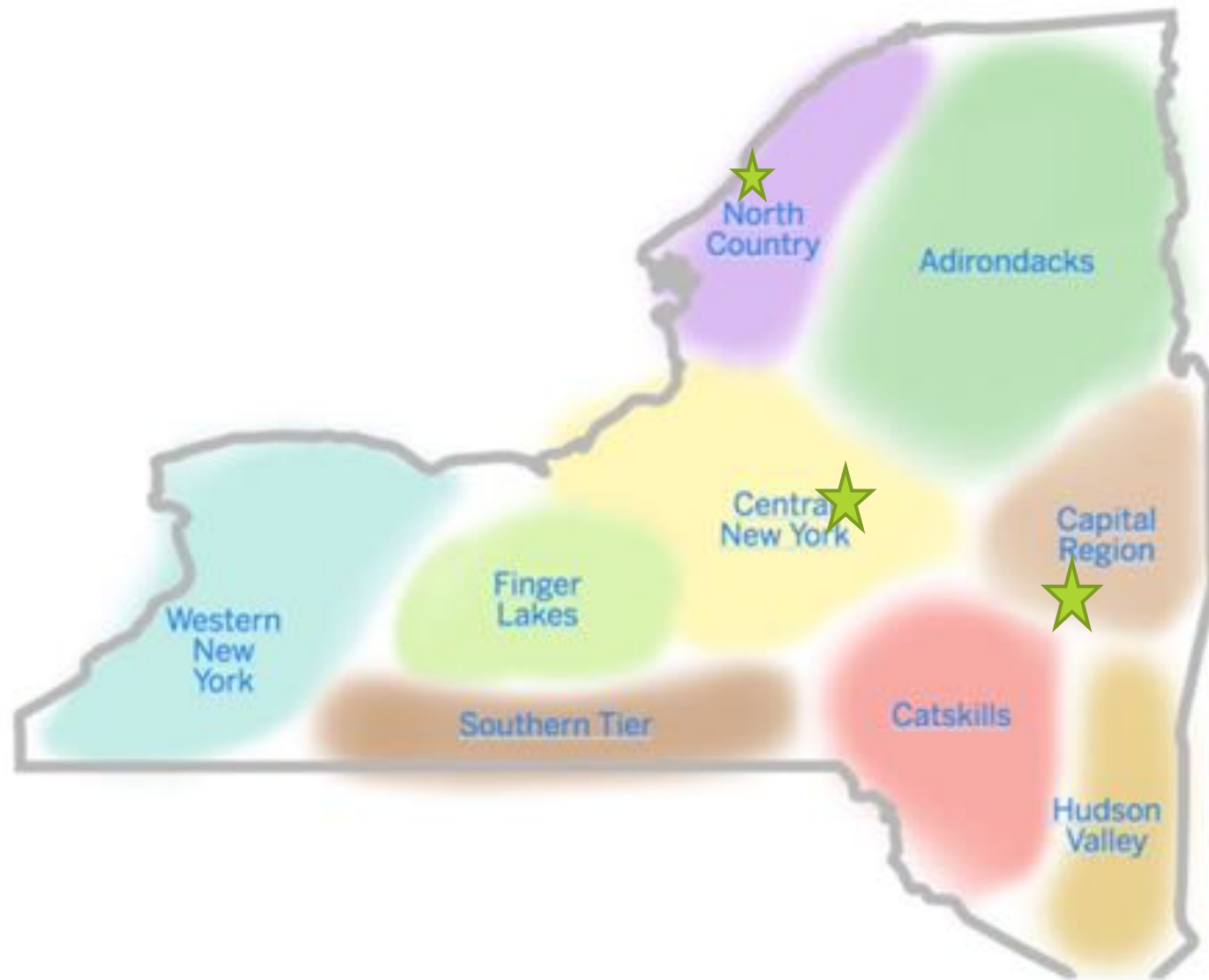


MILITARY OUTREACH



NY?

UPSTATE NY REGIONS HOME



TECHNICIAN TRAINING- FORT DRUM



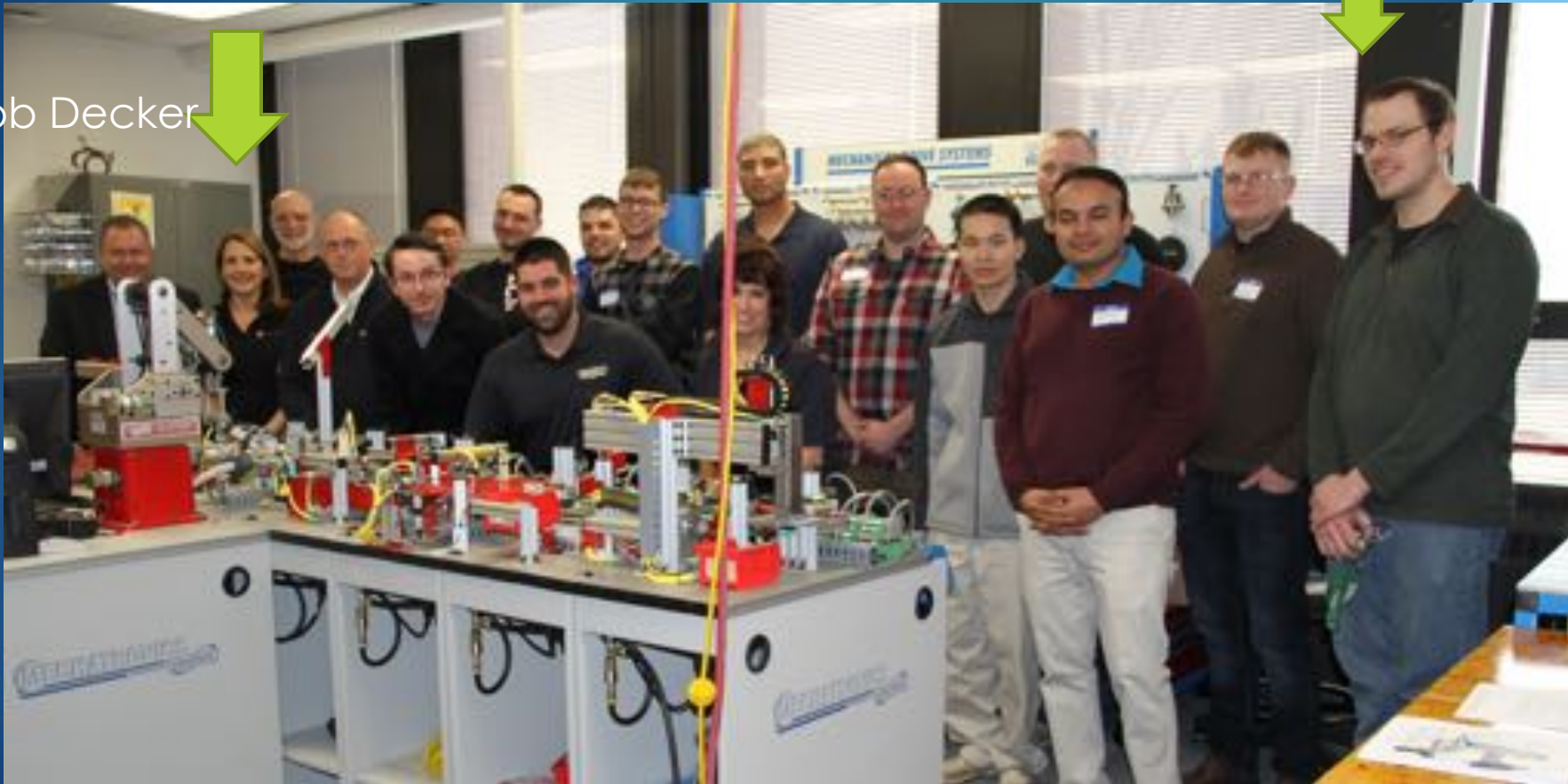
9 Cohorts, 81 Soldiers to date...

Community College Partners-

Mohawk Valley Community College
Jefferson Community College

Nate Roscup

Bob Decker



Advanced Manufacturing Practices



- Measurement tool, assembly tool usage
- Basic mechanical systems
- Technical print reading
- Assembling, crimping electrical connectors
- Fastener usage
- Motor controls
- Basic electrical concepts

Pneumatics Technology



- PPE, safety protocols
- Fluid power graphic symbols
- Design simple pneumatic control circuits
- Relief valves, pressure regulators, pressure switches
- Analyze, diagram, create simple pneumatic circuits
- Troubleshoot problems

Basic Electricity/Electrical Controls



- Basic electrical components
- Safety concerns
- Voltage, current, resistance, power supplied to DC & AC circuits
- Measurement tools
- Series vs parallel
- Relays
- Ladder logic
- PLC
- Troubleshooting
- Wiring of control circuits

Mechatronics



Control systems, sensor types/functions, PLC usage, troubleshooting, use of mechatronics in industry

ADVANCED MANUFACTURING EMPLOYER PARTNERS: >63 Presentations

Allied Motion	Danfoss Silicon Power	Kraft-Heinz	Stebbins Eng.
Anaren (TTM Tech)	Fiber Instrument Sales FIS	LC Drives	TECT Power
Applied Materials	FX Matt	Neenah Paper	TEL
Bartell	Global Foundries	Norsk Titanium	United Radio
Boeing	Pratt & Whitney	Otis Tech	Westrock
CNSE Foundry	Huhtamaki	Panasonic	Coming Soon:
Conmed	Indium Corp	Simmons Machine Tool	Cree
Current Apps	Keymark	Special Metals	Materion

NEATEC'S 72 Hour Bootcamp

- ▶ Advanced Manufacturing Practices – 16 Hours
- ▶ Pneumatics Technology- 16 Hours (8 online)
- ▶ Basic Electricity/Electrical Controls- 16 Hours
- ▶ Mechatronics- 24 Hours

PLUS

Industry Meet & Greet Each Day-
Soon to add 8 week Internships!

WHY?



Is Your College...

- ▶ Facing falling enrollment?
- ▶ Having trouble filling programs?
- ▶ Struggling with student retention?
- ▶ Not meeting the technician workforce needs of employers?

Could the
Military Market
Address These
Issues?





2018 DEMOGRAPHICS PROFILE

ACTIVE DUTY MEMBERS

More than 1.3 million active duty members serve in the four military Service branches: Army, Navy, Marine Corps, and Air Force. These members are an important part of the military community.



1.3 Million Active Duty Members



17.7% Officers



82.3% Enlisted

Army:
471,990 members

Navy:
325,395 members

Marine Corps:
185,415 members

Air Force:
321,618 members



Geographic Location

United States or U.S. Territories: 87.3%

Europe: 5.0%

Western Hemisphere outside U.S.: 0.2%

East Asia: 6.4%

Other/Unknown/ Ships Afloat: 0.4%

North Africa: 0.7%



Source: 2018 Demographics Profile of the Military Community (Department of Defense)
<https://download.militaryonesource.mil/2038/MOS-Reports/2018-demographics-report.pdf>

Gender



83.5% MEN



16.5% WOMEN

Race/Ethnicity

31.0% of AD force Racial Minority*

16.1% of AD force Hispanic or Latino

*Racial minority includes Black or African American, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Multi-racial, and Other/Unknown.

Marital Status

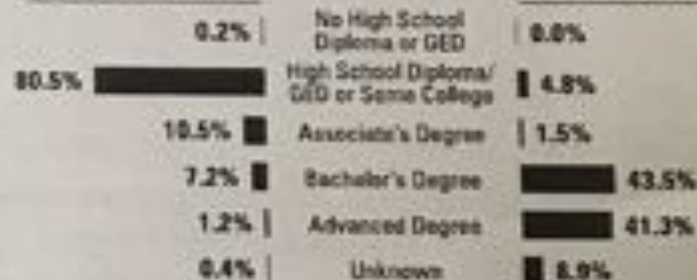


51.5% Married active duty members

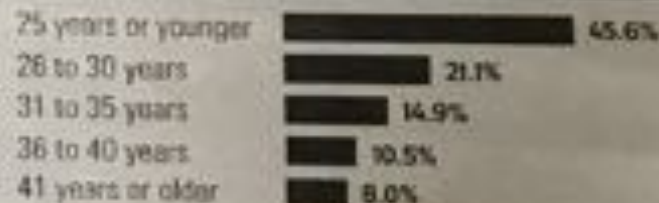
Education

1,073,394 Enlisted

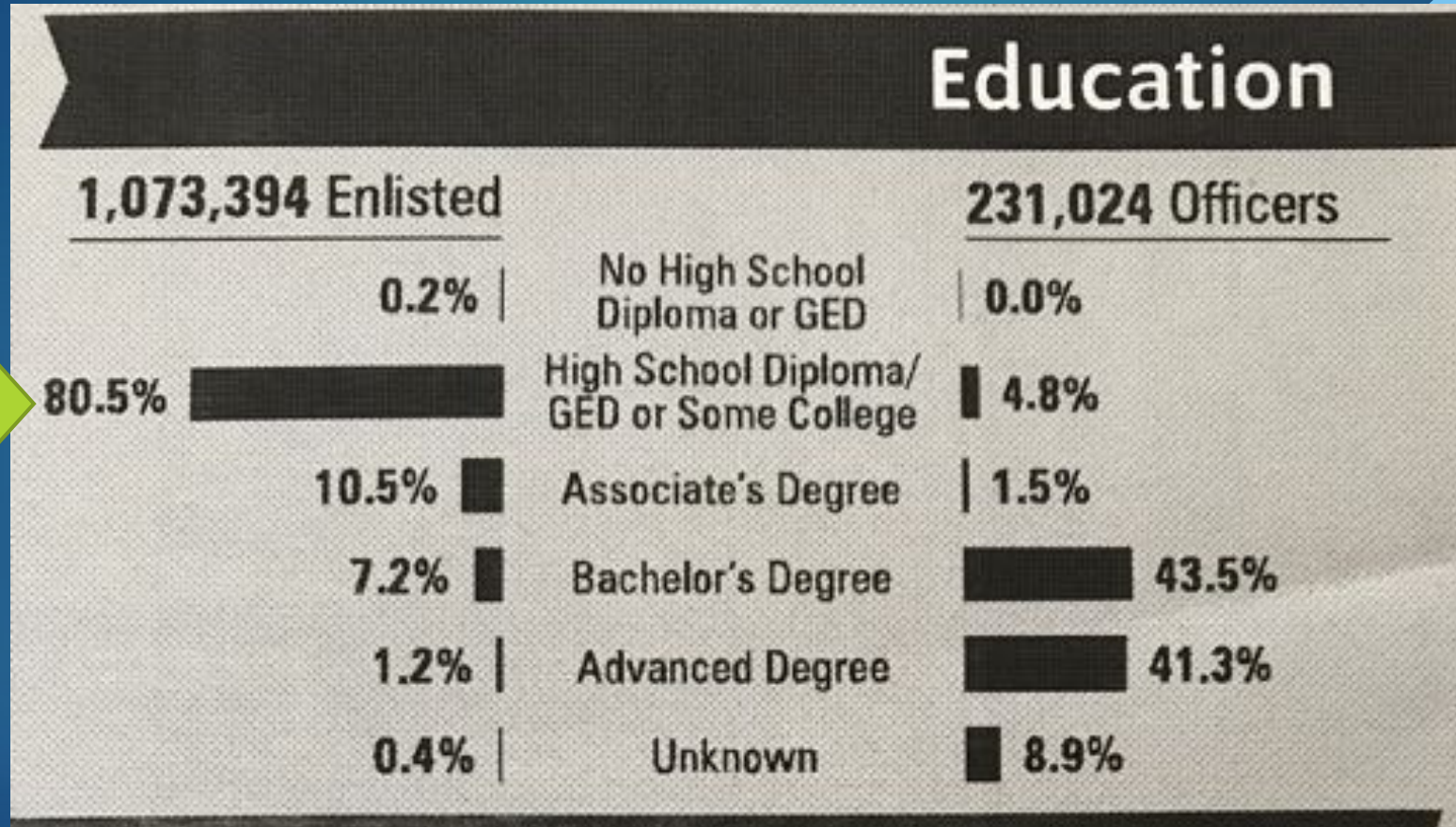
231,024 Officers



Age



Enrollment Potential?



NSF InfoBrief 10/22/18: Characteristics of College Graduates, With a Focus on Veterans [VET InfoBrief](#)

- ▶ Among all civilian college graduates, **veterans were more likely than nonveterans to have attended community college**
- ▶ Among civilian college graduates, **35% of veterans earned an associate's degree**, compared with 20% of nonveterans.



WHO?

Transitioning Service Members-

- ▶ Within 18 months of leaving military service
- ▶ Fort Drum transitions out ~ 300 soldiers/month
- ▶ Nationally > 200,000 Service Members transition out each year

Transition Assistance Program- est. 1991

“The Transition Assistance Program (TAP) provides information, tools and training to help service members and their spouses get ready to successfully move from the military to civilian life.

From start to finish, TAP guides users on veteran benefits, **education options**, federal assistance and **veteran employment help.**”



TAP Office Services:

- ▶ Training Programs- SkillBridge
- ▶ Company Internships
- ▶ Combo- Training/Internship
- ▶ Career Fairs
- ▶ Career Briefs



Military Bases



DoD SkillBridge- Connecting transitioning Service members to career job training opportunities

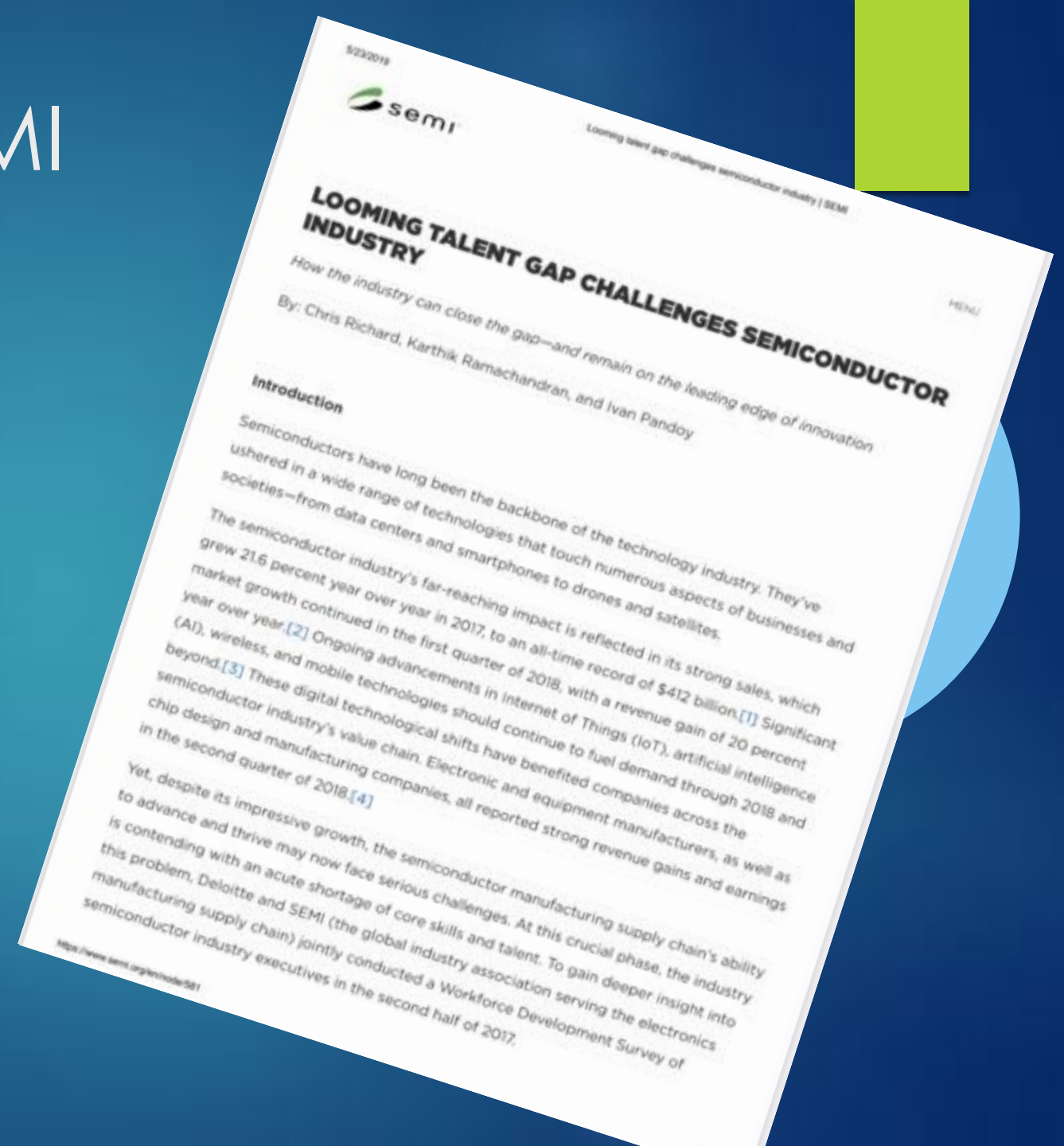
- ▶ [Sample Programs](#)
- ▶ HEROES Make America Program
- ▶ Solar Ready Vets Program
- ▶ Military Separation Data

Industry Demand?



2017 Survey of SEMI Members:

“A large majority (77%) believe there is currently a critical talent shortage within the industry, and another 14% feel the industry will face a severe talent shortage over the next three years (2018-2020)”



Introduction

Semiconductors have long been the backbone of the technology industry. They've ushered in a wide range of technologies that touch numerous aspects of businesses and societies—from data centers and smartphones to drones and satellites.

The semiconductor industry's far-reaching impact is reflected in its strong sales, which grew 21.6 percent year over year in 2017, to an all-time record of \$412 billion.[1] Significant market growth continued in the first quarter of 2018, with a revenue gain of 20 percent year over year.[2] Ongoing advancements in Internet of Things (IoT), artificial intelligence (AI), wireless, and mobile technologies should continue to fuel demand through 2018 and beyond.[3] These digital technologies have benefited companies across the semiconductor industry's value chain. Electronic and equipment manufacturers, as well as chip design and manufacturing companies, all reported strong revenue gains and earnings in the second quarter of 2018.[4]

Yet, despite its impressive growth, the semiconductor manufacturing supply chain's ability to advance and thrive may now face serious challenges. At this crucial phase, the industry is contending with an acute shortage of core skills and talent. To gain deeper insight into this problem, Deloitte and SEMI (the global industry association serving the electronics manufacturing supply chain) jointly conducted a Workforce Development Survey of semiconductor industry executives in the second half of 2017.

10 Reasons Why Manufacturers Should Hire Vets:

1. They accelerate the learning curve- used to learning new things.
2. Proven leaders
3. Understand the importance of teamwork
4. Promote diversity and inclusion
5. Perform well under pressure
6. Respect procedures
7. Attuned to global and technological trends
8. Integrity- know how to work and can be trusted with IP (security clearances)
9. Aware of health and safety standards
10. Triumphant in the face of adversity

Source: US Dept. of Labor

Summary:

- ▶ **WHO?** Active Duty Service Members & Veterans
- ▶ **WHAT?** Technician Training- Credit or Non Credit
- ▶ **WHEN?** Active Duty- Within Last 180 Days of Service, Veterans- Anytime!
- ▶ **WHERE?** On Base or On Your Campus
- ▶ **HOW?** Workshops, Stackable Credentials, Combined with Employer Internship Programs
- ▶ **WHY?** Increase enrollment, provide workforce pipeline, **It's the RIGHT THING TO DO!**

Let's Do This!

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