Manufacturing, Education, & Healthcare

JOSHUA WRIGHT

VP, Economic & Workforce Development

Emsi

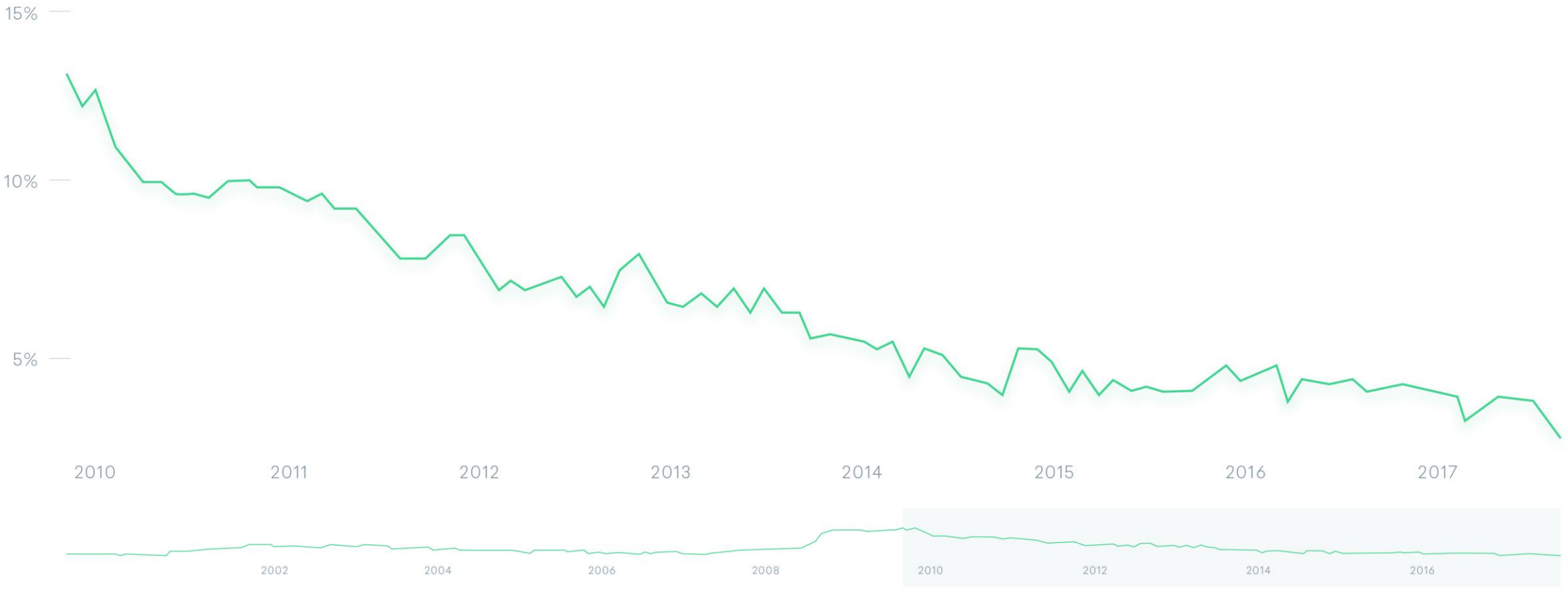
INDUSTRY SECTOR	2001 – 2009 CHANGE	2001 – 2009 % CHANGE
Health Care and Social Assistance	3,045,658	23%
Educational Services	611,537	23%
Mining, Quarrying, and Oil and Gas Extraction	106,177	20%
Accommodation and Food Services	978,738	10%
Professional, Scientific, and Technical Services	635,445	9%
Management of Companies and Enterprises	139,010	8%
Arts, Entertainment, and Recreation	137,322	8%
Government	1,389,403	6%
Other Services -except Public Administration	234,409	4%
Agriculture, Forestry, Fishing and Hunting	-4,438	-0%
Finance and Insurance	-21,086	-0%
Wholesale Trade	-168,506	-3%
Real Estate and Rental and Leasing	-61,270	-3%
Transportation and Warehousing	-170,006	-4%
Retail Trade	-635,643	-4%
Utilities	-39,186	-7%
Administrative and Support and Waste Management and Remediation Services	-614,247	-8%
Construction	-793,000	-11%
Information	-784,274	-22%
Manufacturing	**-4,576,738**	**-28%**
	-590,696	-0%

Industry Performance, 2001-2009

DESCRIPTION	2010 - 2017 CHANGE	2010 - 2017 % CHANGE
Construction	1,230,739	22%
Transportation and Warehousing	894,663	21%
Administrative and Support and Waste Management and Remediation Services	1,582,407	21%
Management of Companies and Enterprises	388,925	21%
Accommodation and Food Services	2,289,856	21%
Professional, Scientific, and Technical Services	1,410,354	19%
Arts, Entertainment, and Recreation	346,895	18%
Health Care and Social Assistance	2,761,123	17%
Educational Services	460,309	14%
Real Estate and Rental and Leasing	215,679	11%
Agriculture, Forestry, Fishing and Hunting	133,275	10%
Retail Trade	1,369,836	9%
Wholesale Trade	397,557	7%
Manufacturing	**818,363**	**7%**
Finance and Insurance	383,828	7%
Information	99,783	4%
Other Services (except Public Administration)	35,522	1%
Utilities	1,499	0%
Government	-232,293	-1%
Mining, Quarrying, and Oil and Gas Extraction	-51,280	-8%
	14,537,041	11%

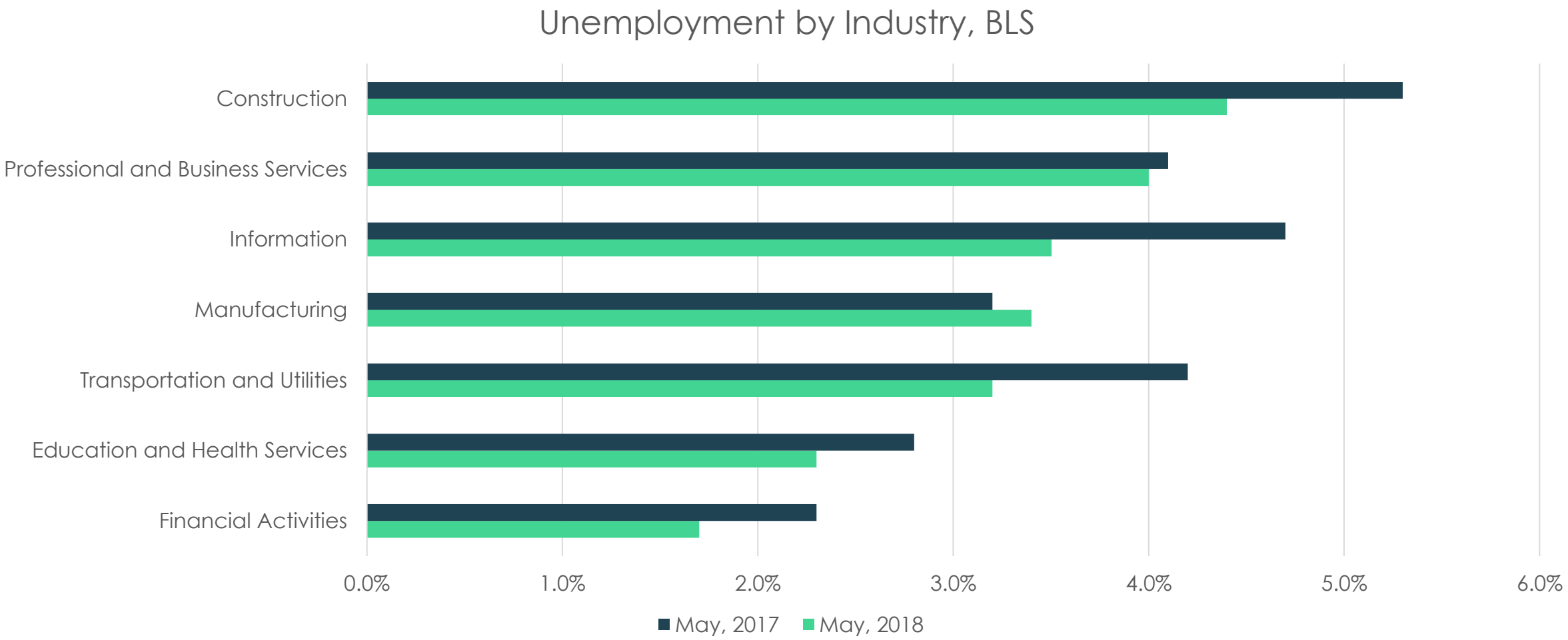
Industry Performance, 2010-2017

Unemployment

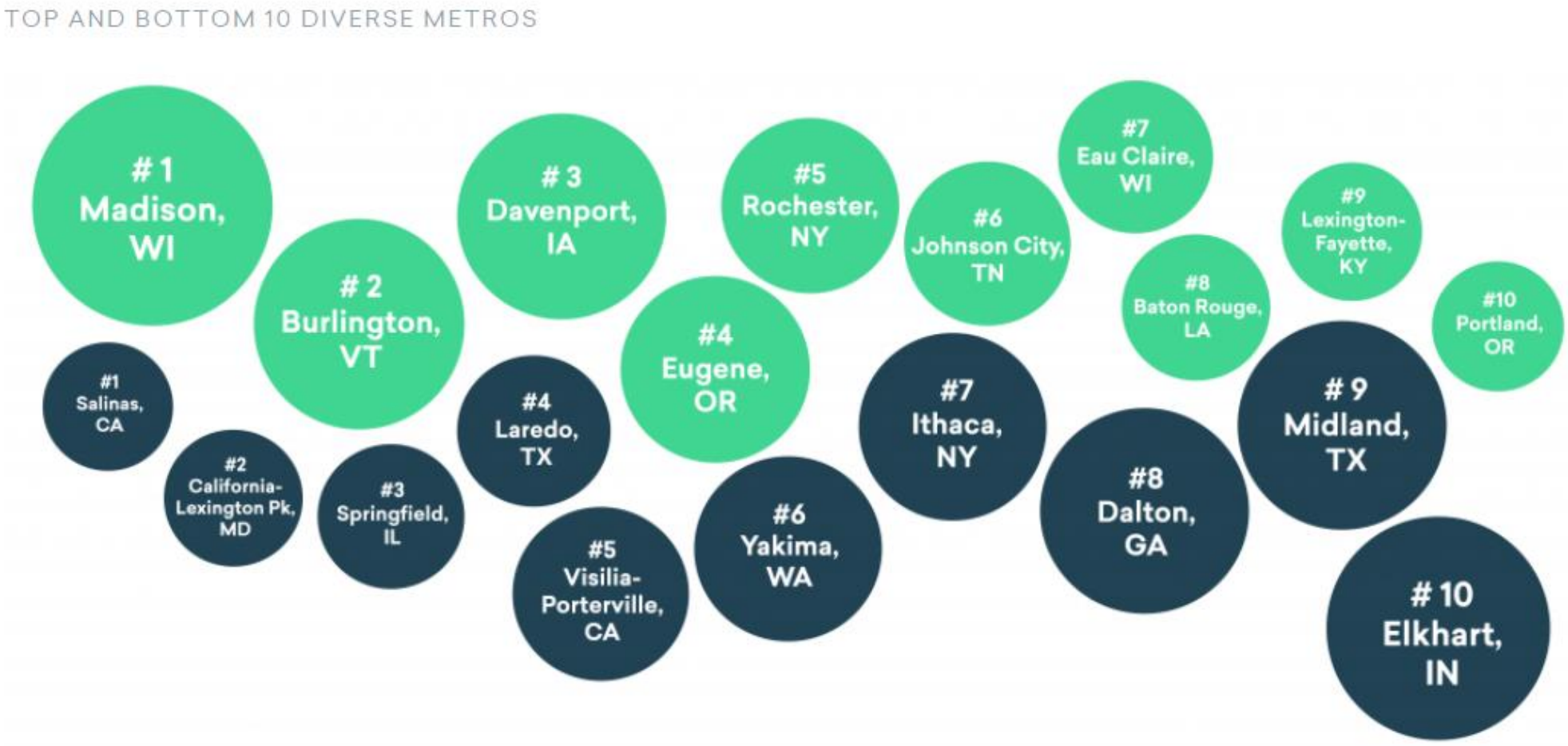


US Bureau of Labor Statistics

Tightening Labor Market



Eds & Meds = Diversity?



MANUFACTURING IS NOT DEAD

The Rise of High Skill, High-Wage Production Jobs

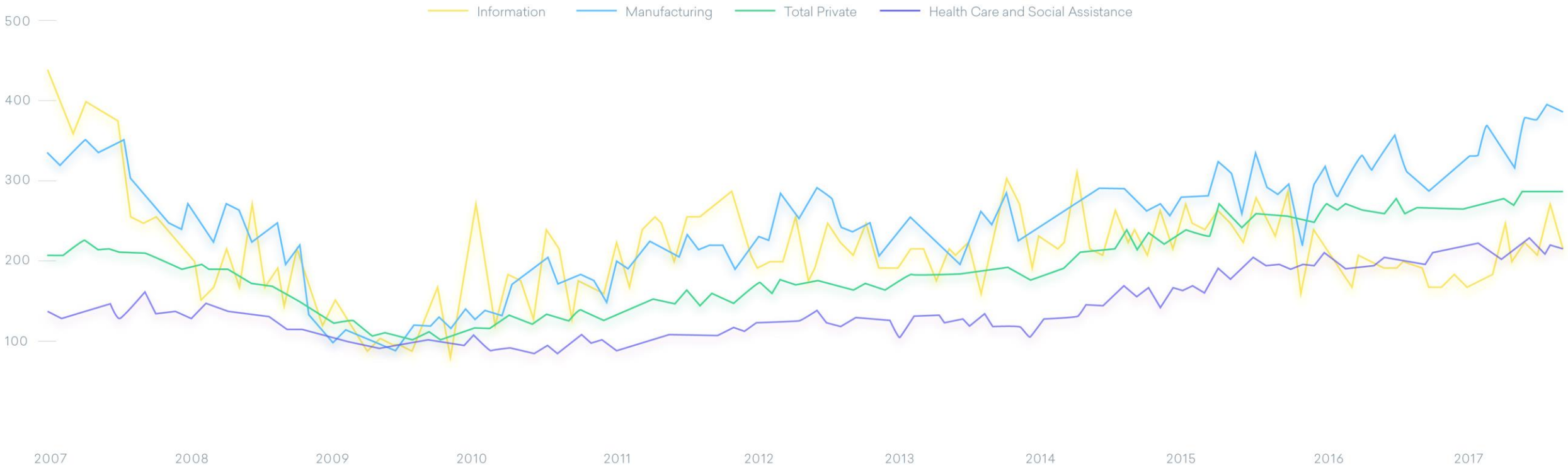
Emsi

Methodology

- **Demand** - Used **industry and occupation** data to analyze overall performance
- **Skill Clusters** - Evaluated **400K postings** for 2017 to determine the **skills** employers need
- **Wages - Analyzed compensation data** collected from traditional sources, job postings, and resumes/online profiles to determine whether these skills lead to increased wages
- **Transition** - Used postings and profiles to trace how the **skills** manifest

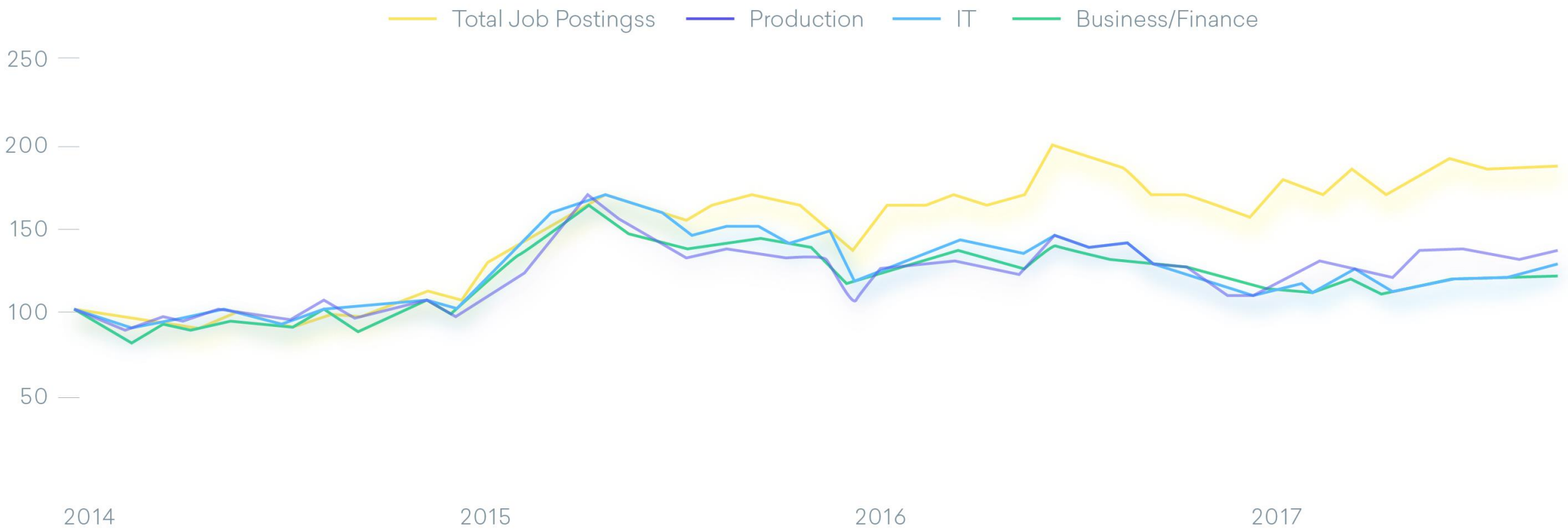
Author's estimate of CES (1990-2017). Shaded areas represent US recession as reported by NBER. Real output is from US BLS.

Job Openings



Analysis of Job Openings from JOLTS, 2007-2017

Job Postings



Emsi Job Posting Analytics, 2014-2017

Demographics
(Half of all workers are above 45)

AGE	2017 JOBS	2017 %
14-18	59,414	0.7%
19-24	753,874	8.3%
25-34	1,813,589	19.9%
35-44	2,000,356	21.9%
45-54	2,358,982	25.8%
55-64	1,758,337	19.3%
65+	384,439	4.2%

PBS NEWSHOUR

Student Kalei Kipp in Cedar Crest High School's welding program in Lebanon, Pennsylvania, during the 2016-2017 school year. Three percent of welders in the U.S. are women. Photo from PBS NewsHour's Student Reporting Labs series "Outside the Box."

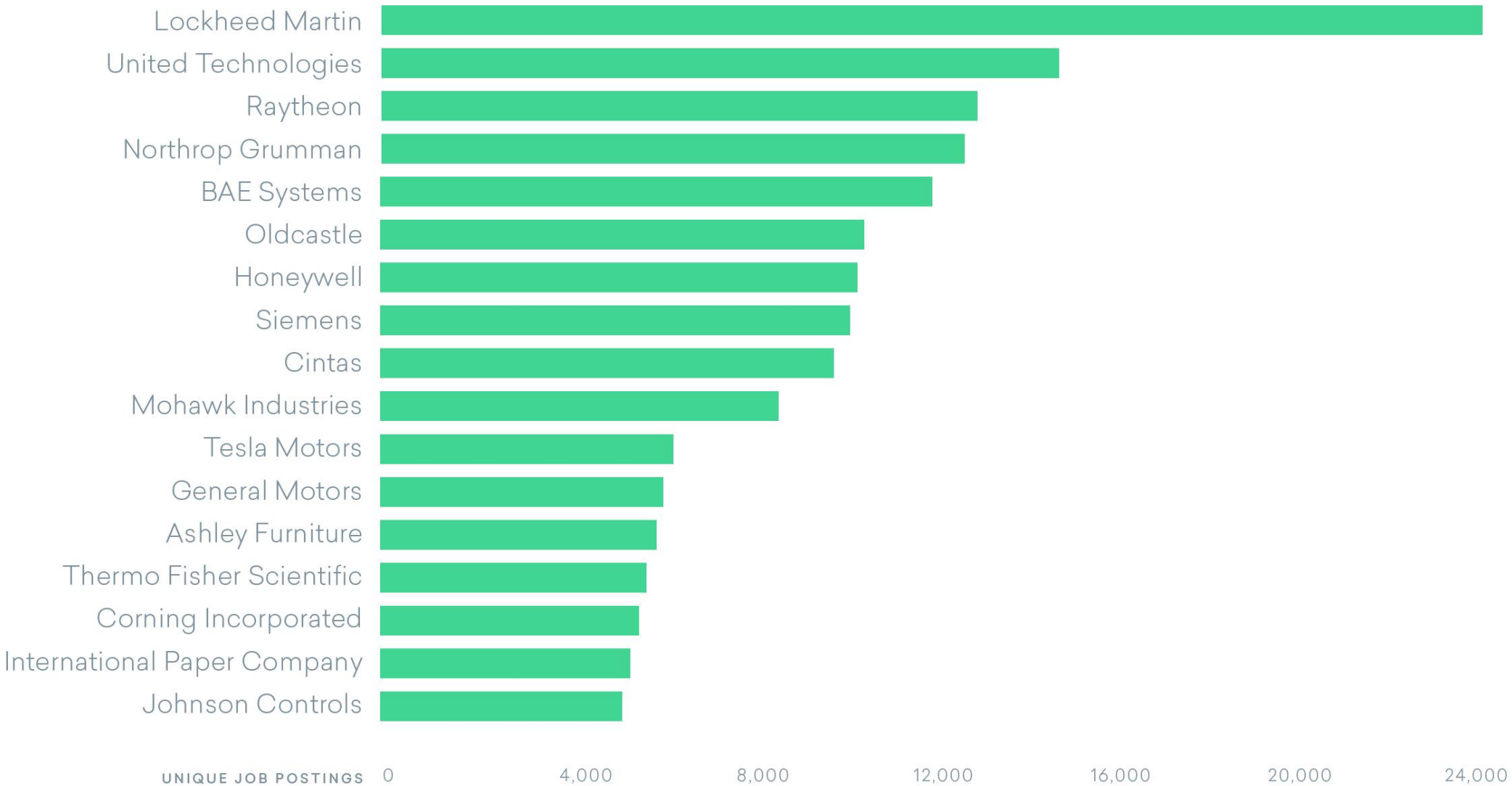
After decades of pushing bachelor's degrees, U.S. needs more tradespeople

U.S. Manufacturing Landscape

- 30 year decline
- Re-emergence since 2010
  - 800,000+ new jobs
  - 350% increase in openings
  - 2.6% unemployment
  - Postings rivaling IT and health care
- Lack of supply/massive shortages

UNITED STATES, 2017

Top Companies Advertising for Production Workers



Emsi Job Posting Analytics, 2017

Top Companies Posting

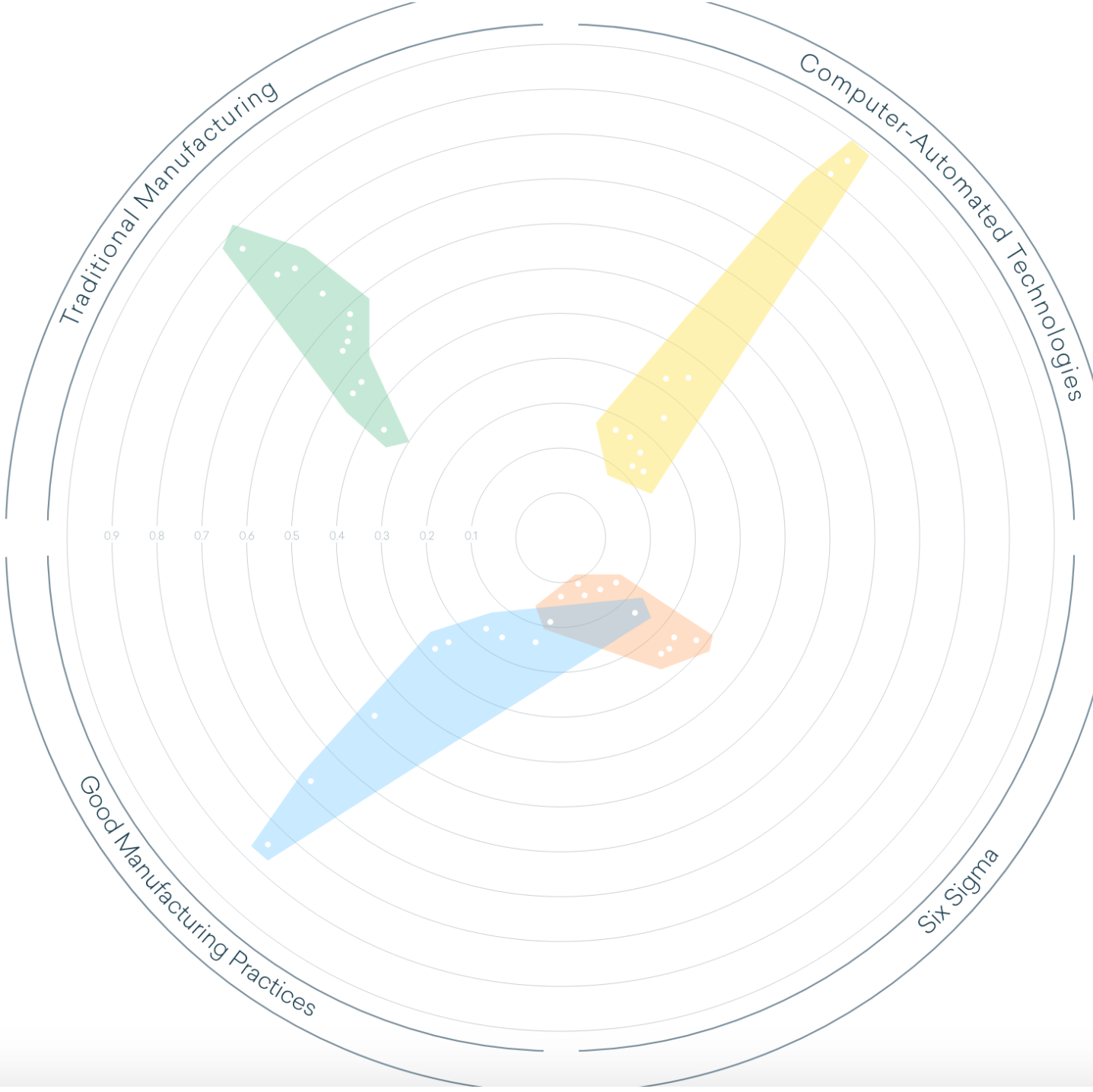
- **Aerospace and defense product manufacturers** (Lockheed Martin, United Technologies, Raytheon, Northrop Grumman)
- **Auto manufacturing and parts** (General Motors, Tesla, Johnson Controls)
- **Building and construction materials** (Oldcastle, Mohawk)
- **Consumer goods** (Ashley Furniture, Honeywell, Corning)
- **Health care and biotech** (Siemens, Thermo Fisher Scientific)

What do jobs look like today?

- Skills and transferability
- Compensation
- Do skills differ between locations?
  - Nationally
  - Michigan
  - Texas
  - California

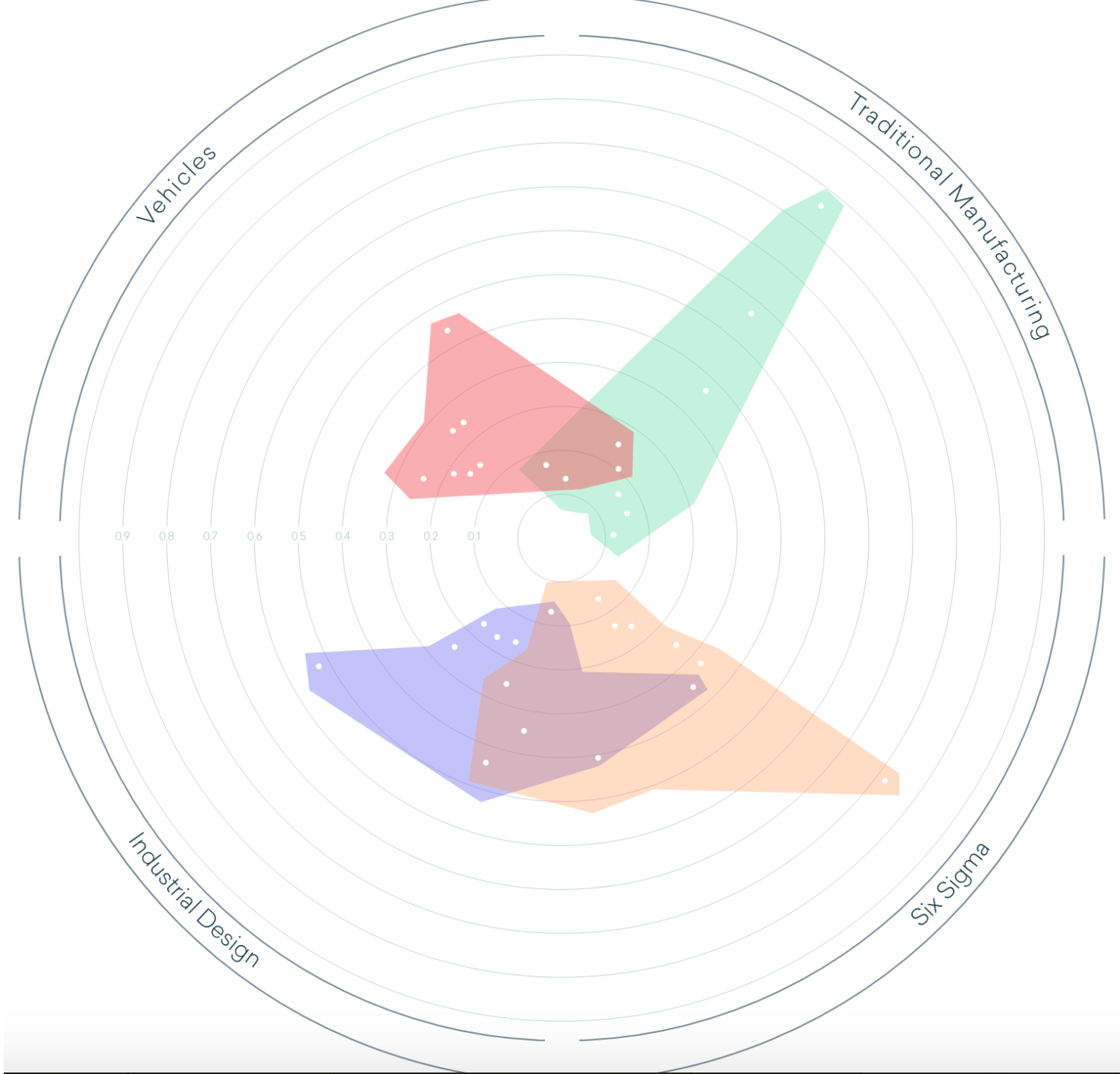
National Cluster

- **Traditional**
  - Welding, machining, etc.
- **Computer-Automated Tech (CAT)**
  - Tech that aids production
- **Six Sigma (or Lean)**
  - Process improvement
- **Good Manufacturing Practices (GMP)**
  - Quality control



Michigan

- Vehicles and Industrial Design
- Two classic production sets
- Two engineering-oriented sets
- Traditional and vehicles overlap
- Industrial design and Six Sigma overlap



California

- Vehicles is the dominant cluster
- Other three – industrial design, Six Sigma, and GMP are engineering oriented
- Corrective and preventative actions (CAPA) shows up in three lanes

Texas

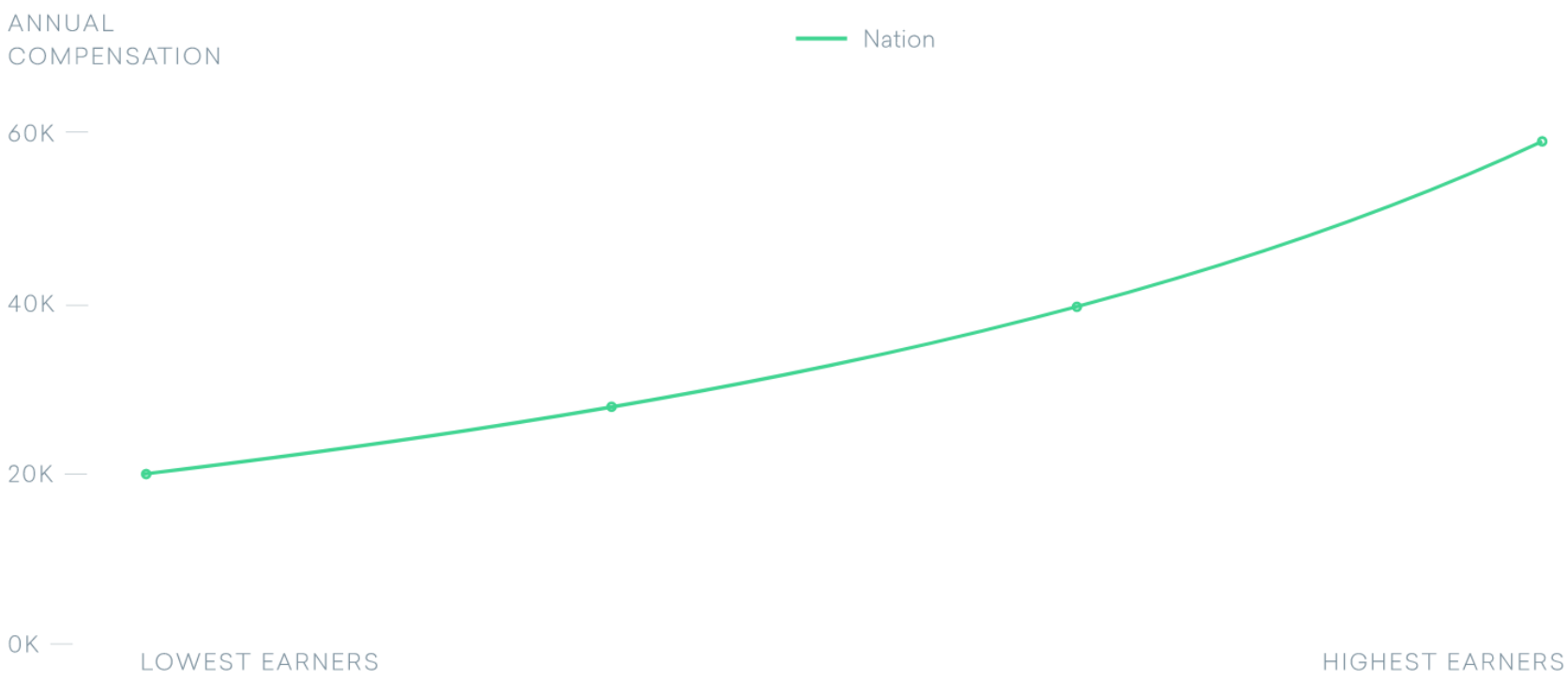
- More skills clusters and skills overlap
- Horizontal skills common to most clusters
  - Quality Control
  - Oil & Gas
  - Automation
  - Welding
  - Flame Cutting
  - Manufacturing Processes
  - Process Control

Skills Summary

- Employers look for blend of **classic production skills** and **engineering-oriented skills**
- Emerging skill sets – hybrids or fusions of two different areas
- Balance between on-the-ground know-how and process improvement/quality control
- High-tech

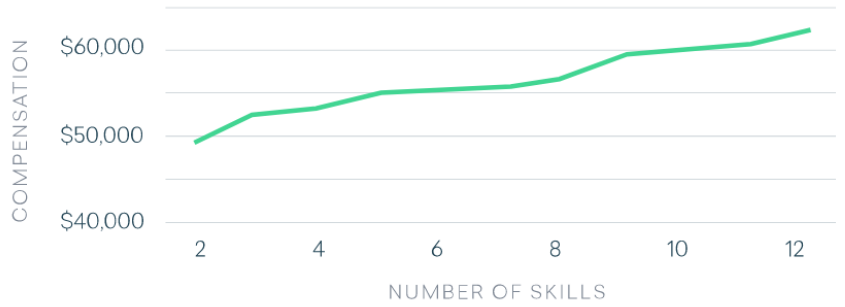
Compensation – Production Workers

FIGURE 32. ANNUAL COMPENSATION FOR PRODUCTION OCCUPATIONS IN THE UNITED STATES, 2016



Compensation by Skill

TABLE 3. THE EFFECT OF UPSKILLING ON MANUFACTURING SALARIES
COMPENSATION BY SKILLS FOR THE SIX CLUSTERS ANALYZED



Vehicles

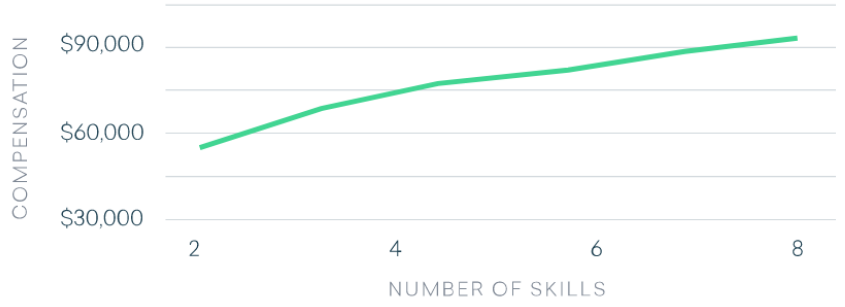
WEIGHTED AVERAGE

$48,585

Traditional Manufacturing

WEIGHTED AVERAGE

$56,541

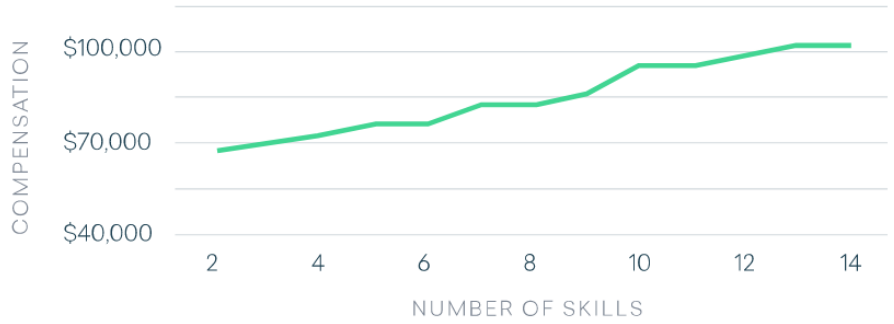


Computer-Automated Technologies

WEIGHTED AVERAGE

$63,787

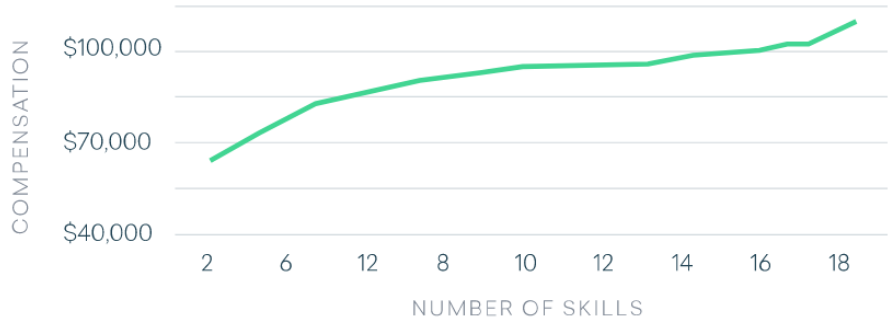
Compensation by Skill



Good Manufacturing Practices

WEIGHTED AVERAGE

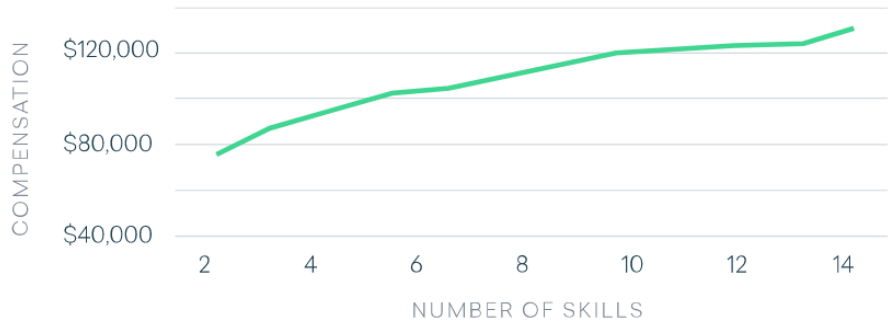
$74,613



Industrial Design

WEIGHTED AVERAGE

$74,978



Six Sigma

WEIGHTED AVERAGE

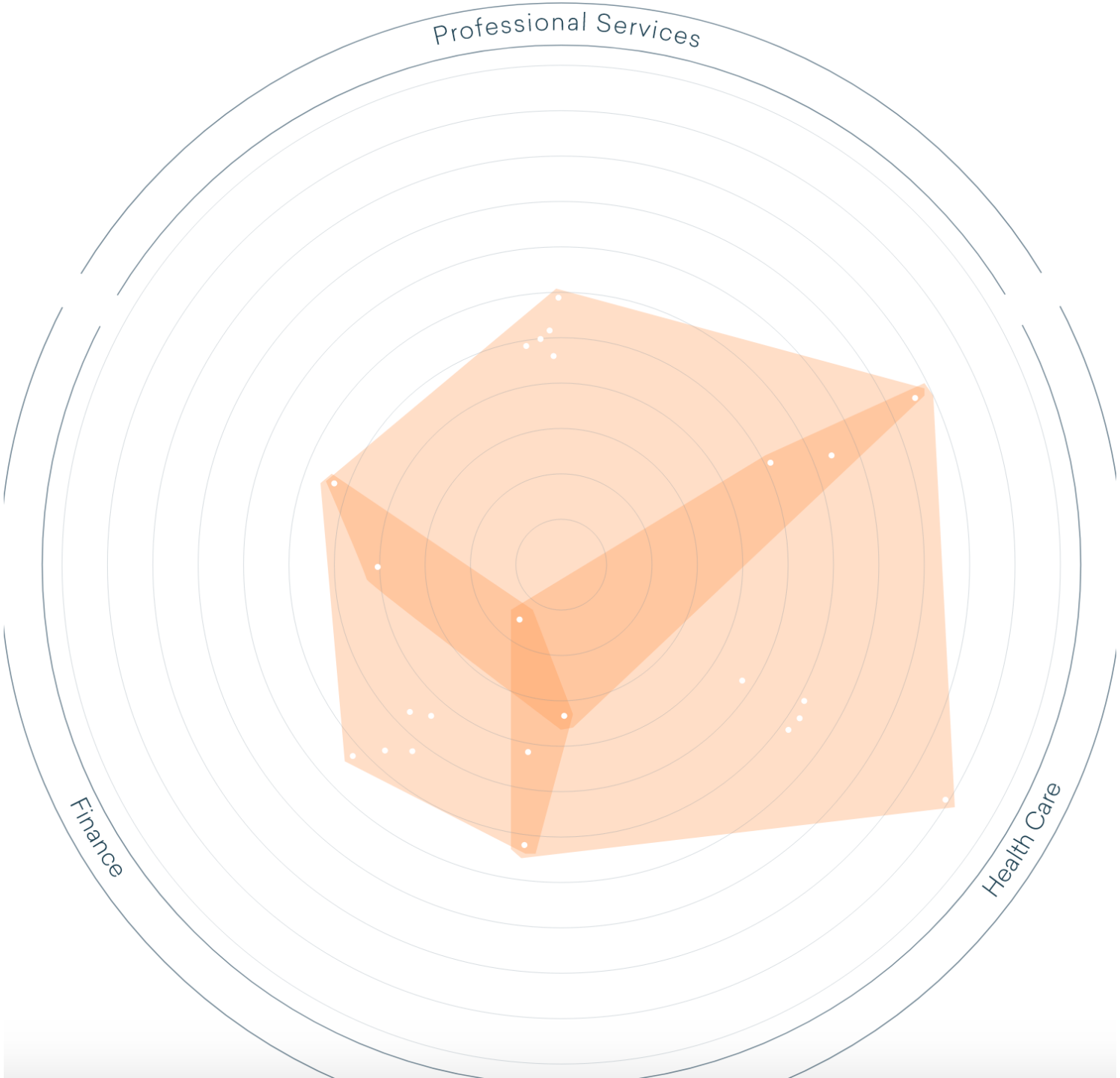
$79,093

SKILL CLUSTER	MOST COMMON JOB TITLES LISTED BY EMPLOYERS	TYPICAL EDUCATION LEVEL
Traditional	Welders, Machine Operators	High School Diploma
Vehicles	Maintenance Mechanics, Manufacturing Maintenance Technicians	High School Diploma
Computer-Automated Technologies	CNC Machinists, CNC Programmers	High School Diploma
Good Manufacturing Process	QA Engineers, QA Managers	Bachelor's Degree
Industrial Design	Design Engineers, Mechanical Engineers	Bachelor's Degree
Six Sigma/Lean Processes	Manufacturing Engineers, Production Supervisors*	Bachelor's Degree *High School Diploma

Pathways

- Production workers gain engineering skills
- Employers are investing in education/training
- Engineering skills open door to the business side of the house
- Other industries use these skill sets too

Six Sigma



Concluding Thoughts

- **Combine data with on-the-ground intel**
  - Use data to assess needs
  - Combine data with employer conversations
  - Develop an action plan

- **Double down on partnerships**
  - Promote workforce development and education programs that focus on the modern manufacturing skills specific to your region
  - Partner to develop a stronger education pipeline

Concluding Thoughts

- **Find new or better ways to support local manufacturers**
  - Understand local employer skills gaps
  - Provide insight using the research presented today
  - Discuss internship, apprenticeship, and training opportunities to grow a steadier pipeline
  - Discuss wage and job description opportunities

MANUFACTURING IS NOT DEAD

The Rise of High Skill, High-Wage Production Jobs

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