

CEG WORKFORCE DEVELOPMENT INITIATIVES

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- Pathways Project for Advanced Manufacturing
- Manufacturing Technology Pathways
- Apprenticeship Program

PATHWAYS PROJECT FOR ADVANCED MANUFACTURING



The Pathways Project was an initiative completed last summer that brought together business, education, labor and workforce partners to develop a region wide sector partnership to help clarify the issues surrounding the development and availability of a skilled workforce for all local manufacturers.

- Collaborative effort between:
 - the Capital Region Workforce Development Board (Albany, Rensselaer, Schenectady)
 - the Columbia, Greene Workforce Development Board
 - the Saratoga, Warren and Washington Workforce Development Board
 - the Center for Economic Growth
 - GLOBALFOUNDRIES, Simmons Machine Tool, Sheet Metal Workers Local #83

Qualitative Interviews Overview

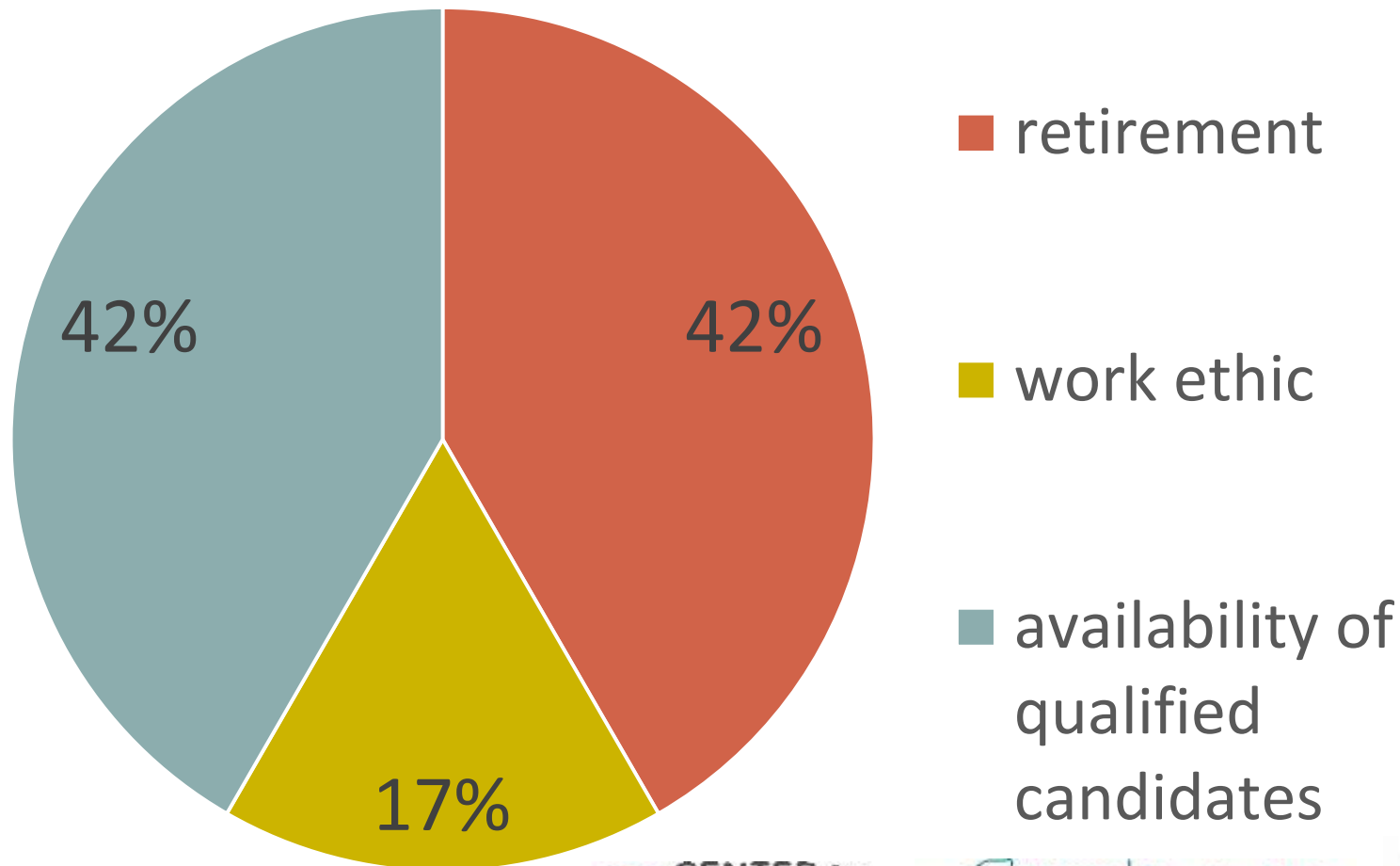
- Intention = gather observations from individuals at both the “executive” and “floor” levels
 - top-down **and** bottom-up perspective on the manufacturing industry
- Spoke to manufacturing CEOs/HR professionals and non-exempt manufacturing-focused employees
- Line of questioning differed for the CEO/HR interviews and the non-exempt interviews (see appendix 1)
- Information was used to help inform SWOT analysis; transferable skills analysis; and, key recommendations
- Certain questions from HR & non-exempt interviews converted into quantifiable data and analyzed in report

Who did we interview?

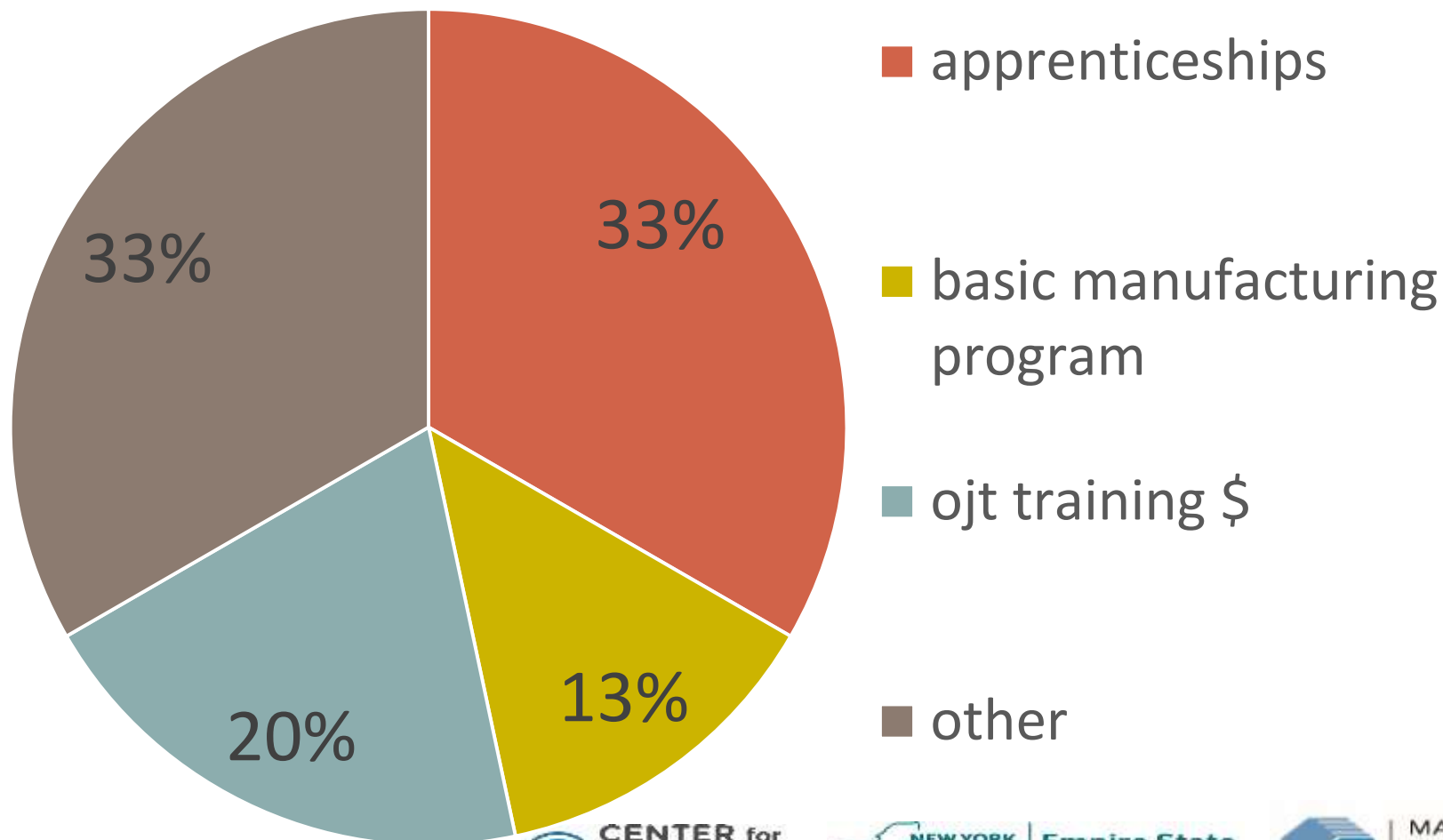
- Visited sites across four of the region's eight counties
- Spoke to a combined total of 63 individuals
- ~34 total hours of interviewing

1. **Applied Robotics**, Schenectady County
2. **Ball Metal Beverage Container**, Saratoga County
3. **Blasch Precision Ceramics**, Albany County
4. **Digifab Shop**, Columbia County
5. **Espey Manufacturing & Electronics Corporation**, Saratoga County
6. **Frank Murken Products**, Schenectady County
7. **General Electric**, Schenectady County
8. **GLOBALFOUNDRIES**, Saratoga County
9. **Greno Industries**, Schenectady County
10. **Mohawk Paper**, Albany County
11. **PGS Mill Work**, Columbia County
12. **Pretium Packaging**, Columbia County
13. **Quad Graphics**, Saratoga County
14. **Simmons Machine Tool**, Albany County
15. **Specialty Silicone Products**, Saratoga County
16. **Transtech Systems**, Albany County
17. **Sheet Metal Workers Local #83**, Albany County
18. **Hudson Valley Community College**
19. **Schenectady County Community College**

CEO/HR Interviews – Biggest Problem Facing Organization’s Workforce Needs



CEO/HR Interviews – What Workforce Resources Would You Like

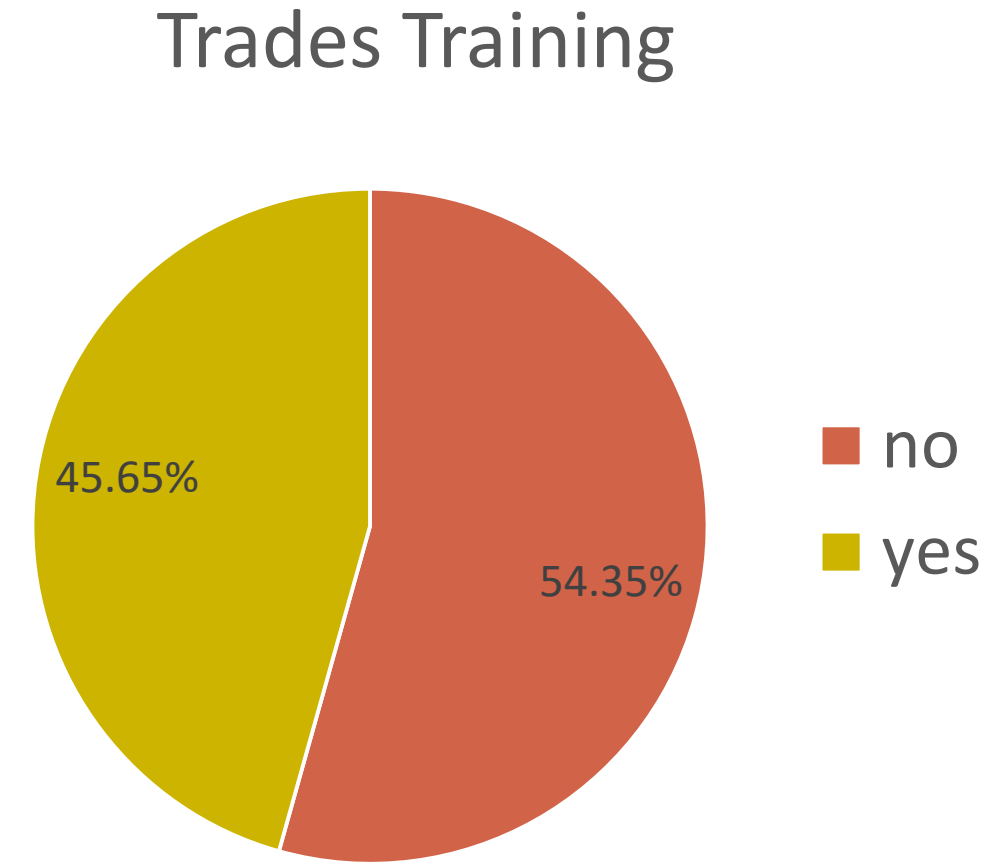
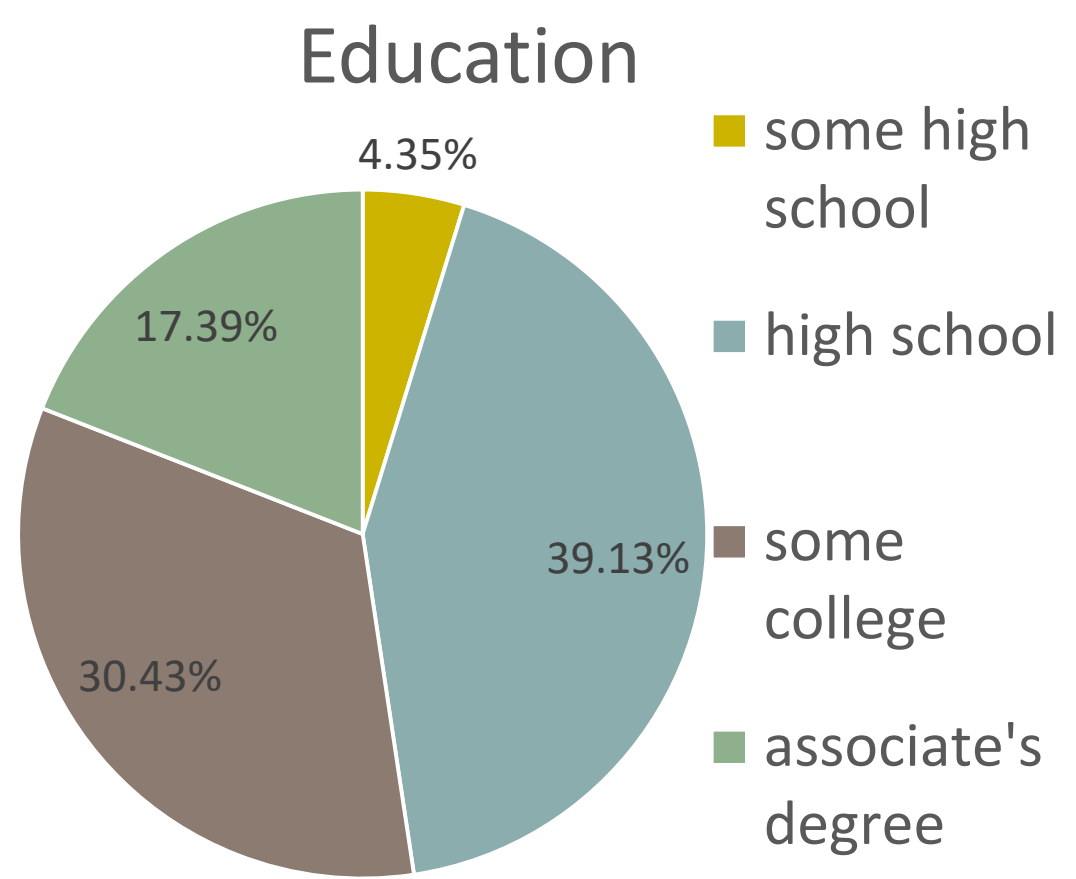


Employee Interviews

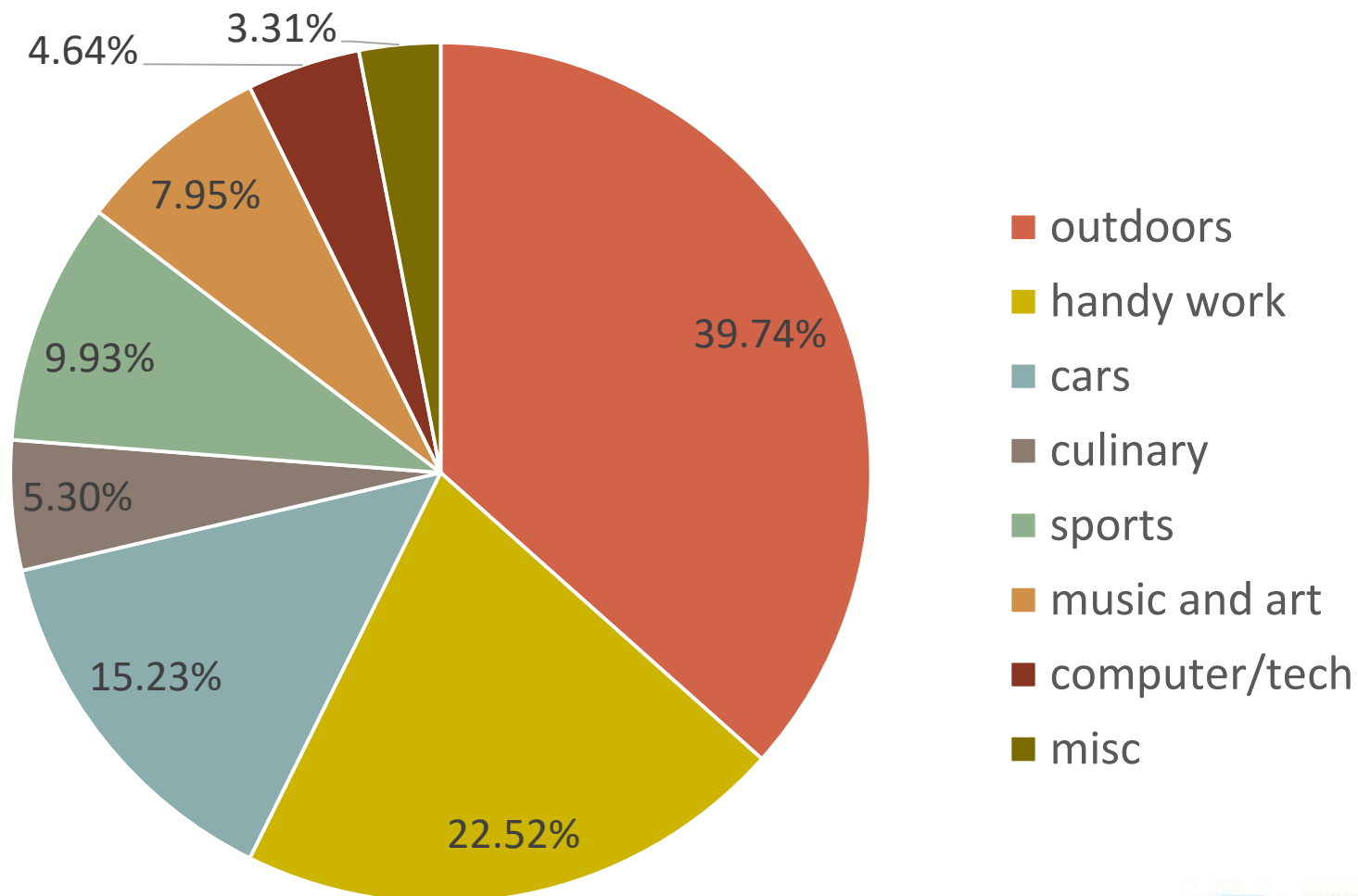
Demographics & basic info (charts starting on page 8 of report)

- 46 individuals
- 41 males, 5 females
- Majority (32%) identified as in the 25-34 age bracket
 - Over 50% were in the 25-44 age bracket
- 28.3% identified residing in Saratoga County
- 33% in manufacturing for 1 to 5 years
 - Over 50% <10 years
- Over 50% had been in current position for 1 to 5 years

Employee Interviews - Education

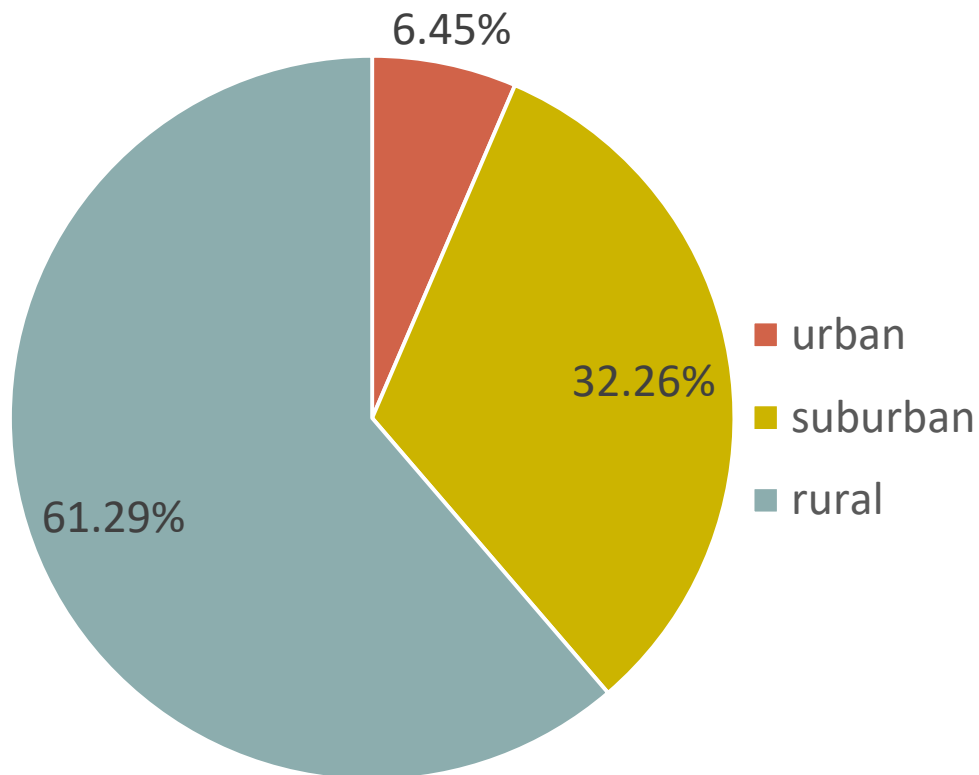


Employee Interviews - Hobbies

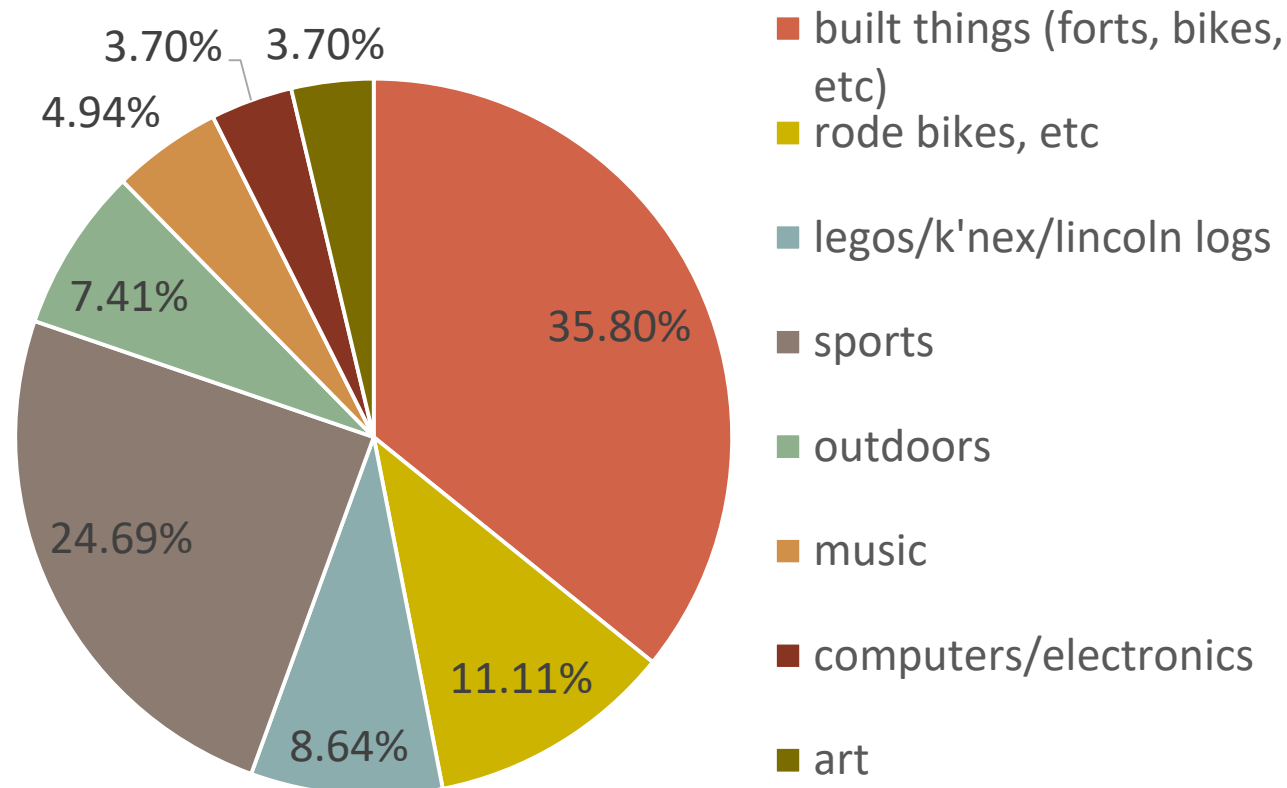


Employee Interviews – Childhood/Youth

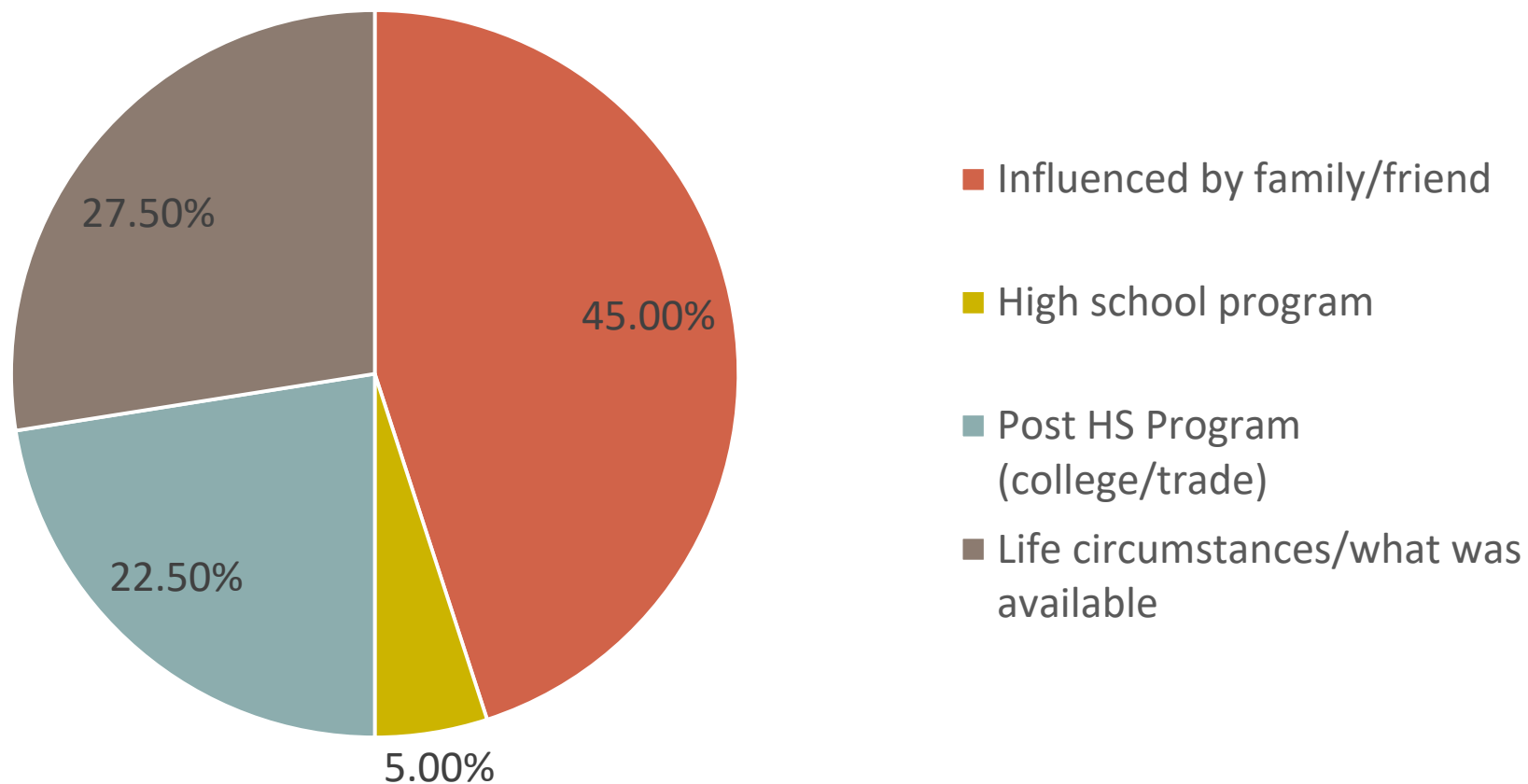
Childhood Environment



Childhood Interests

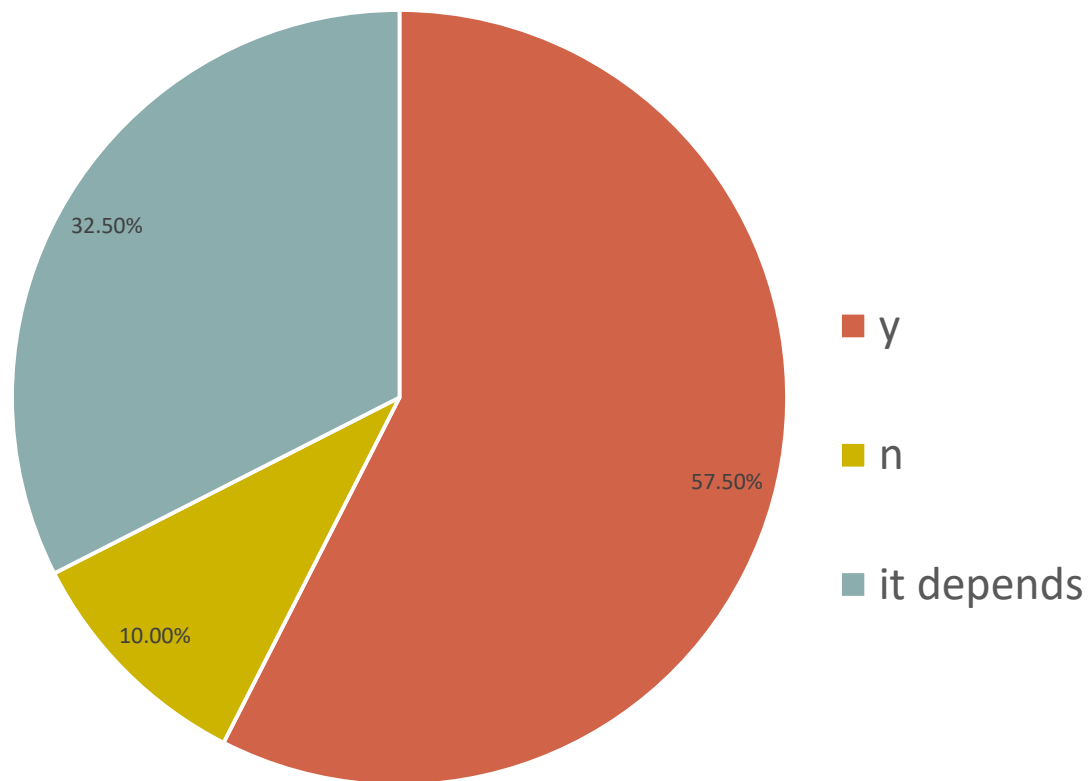


How did you choose this career path?



Employee Interviews – Perception

Viable, Prosperous Career Path?



Transferable Skills Analysis Overview

Transferable Skills Analysis included three steps:

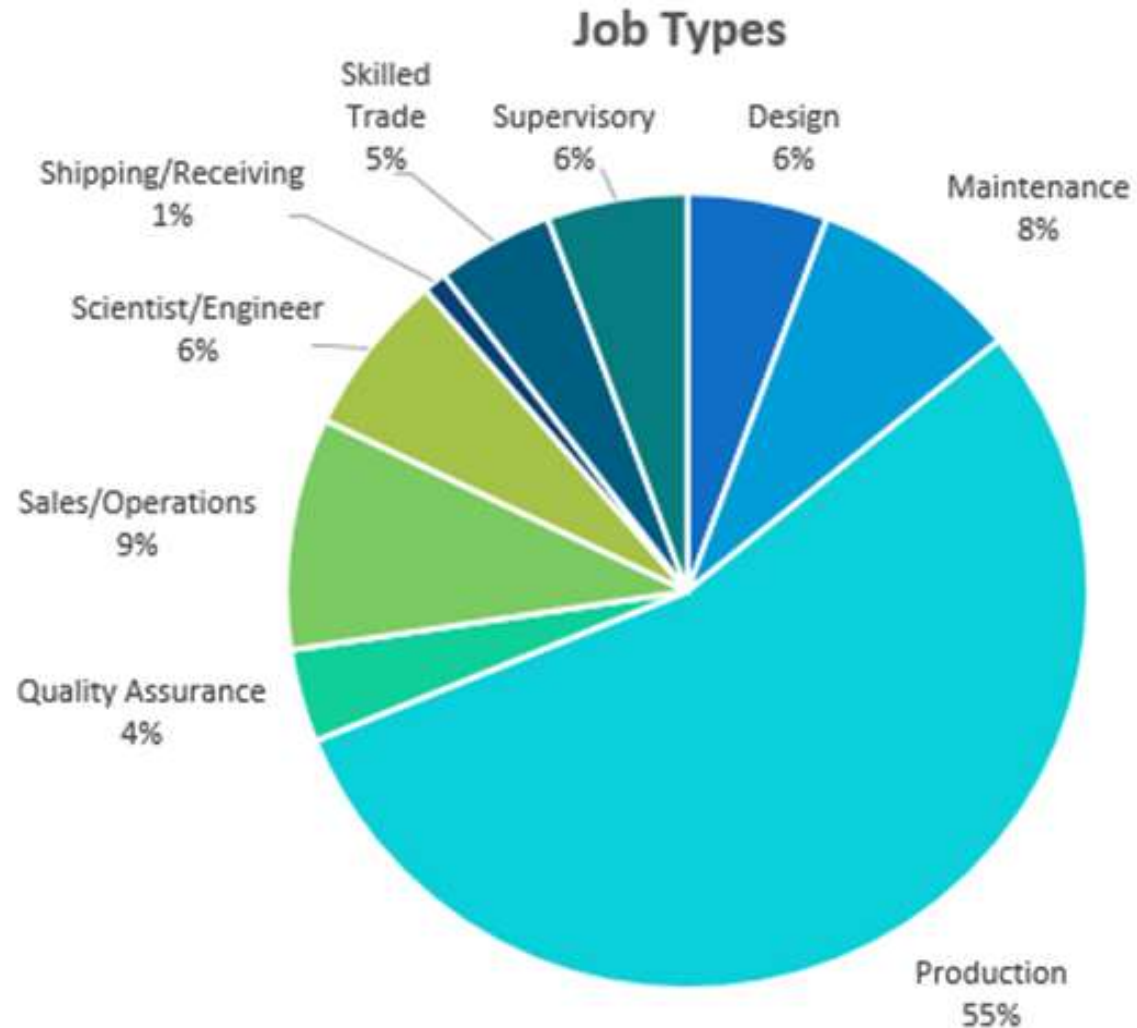
1. Interview manufacturing executive teams about most desired job openings and skills required for those jobs
2. Using data gathered from these interviews, develop a survey tool to conduct a broader response to desired entry level jobs and skills required for those jobs
3. Research nationally recognized manufacturing workforce development programs

After conducting about three quarters of the manufacturing interviews, CEG, working with Metrix Learning, deployed a broader survey of manufacturing executives

- 43 viable responses
- 40 unique companies
- 172 current job openings
- Majority small to mid-size companies

Transferable Skills Analysis Overview

- 55% of open jobs are for production positions
- Minimum required skills for entry level positions: Communication, Math, Computer, Safety, and Process skills
- The skills with the most number of responses included: Safety, Communications, Mechanical, Math, and Process skills.



Recommendation for Transferable Skills

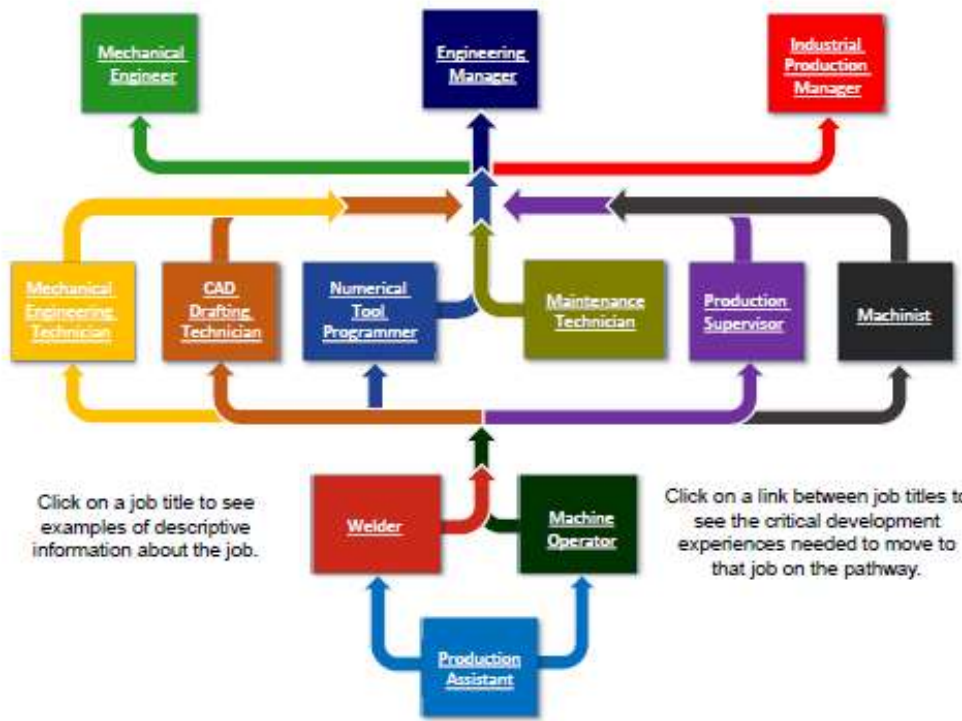
During the study three major consensus stood out during our interview process:

1. Insufficient pipeline of qualified candidates,
2. Candidates lacked the basic manufacturing skills,
3. Lack of a qualified structure training program existed for entry-level manufacturing jobs.

Therefore, we recommend:

- Develop a level-one manufacturing certificate program, leveraging resources such as ToolingU, Metrix Learning, WorkKeys
- Basic program should cover many of the skills identified in our transferable skills analysis as well as best practices employed by the programs
- Program should provide a universally recognized assessment that aligns specific competency models that cross industry sectors.

Sample Career Ladder/Lattice for Advanced Manufacturing



Click on a job title to see examples of descriptive information about the job.

Click on a link between job titles to see the critical development experiences needed to move to that job on the pathway.



The Columbia, Greene, Saratoga, Warren, Washington, Albany, Schenectady and Rensselaer workforce investment board



MANUFACTURING EXTENSION PARTNERSHIP National Network

MANUFACTURING TECHNOLOGY PATHWAYS



- Working collaboratively with the SUNY Hudson Valley Community College, CEG and HVCC launched a new program that provides access to a variety of local manufacturers who have indicated difficulty filling positions.
- The Manufacturing Technology Pathways Program creates a clearly defined, accessible pathway into entry and middle-skill manufacturing careers through the implementation of a stackable credential education model.
- HVCC and CEG are using this training to begin to build a pipeline of ready, skilled workers and expand post-secondary educational opportunities for residents of the Capital Region (Albany, Schenectady, Rensselaer, Saratoga, Warren, Washington, Columbia and Greene Counties).
- The program is 3 total weeks:
 - Week 1 is 25 hours of online training through Tooling U
 - Week 2 & 3 is 80 hours (40 p. week) of classroom-instruction

Manufacturing 101 Boot Camp – Manufacturing Fundamentals (Aprox. 25 hours)

This program is designed to be completed in 90-120 days. The online curriculum can be accessed 24/7 from any computer with internet access. This program will also prepare students for: Industrial Maintenance 102; Machining 103; Welding 104.

- Basic Measurement
- Basics of Manufacturing Costs
- Basics of Tolerance
- Blueprint Reading
- Essentials of Communication
- Intro to Abrasives

- Intro to Additive Manufacturing
- Intro to Assembly
- Intro to Fluid Systems
- Intro to Hydraulic Components
- Intro to Mechanical Systems
- Intro to OSHA

- Intro to Pneumatic Components
- Intro to Robotics
- Intro to CNC Machines
- Intro to Mechanical Properties
- Intro to Metals
- Intro to Physical Properties

- Intro to Welding
- Math Fundamentals
- Math Fractions & Decimals
- Quality Overview
- Troubleshooting
- Units of Measurements

Week 2 Classroom Instruction

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 - 9:00	Y	Introduction Lang 205 All Instructors	Basic Shop Math Lang 205 Crucetti	Mechanical Hand Tools Lang 102 Hamilton	Basic Measurement Lang 102 Hamilton
9:00 -10:00	A	Basic Shop Math Lang 205 Crucetti			
10:00 -11:00	D		Blueprint Reading Lang 205 Crucetti	Mechanical Fasteners Lang 102 Hamilton	Measurement and Layout Lang 102 Hamilton
11:00 -12:00	I				
12:00 - 1:00	L	Lunch & Learn CEG Lang 205	Lunch & Learn Tracey Riley Finch Paper Lang 205	Lunch & Learn Dave Barcomb Troy Industrial Lang 205	Lunch & Learn Robert Day Watervliet Arsenal Lang 205
1:00 - 2:00	O	Blueprint Reading Lang 205 Crucetti	Safety Lang 102 Hamilton	Mechanical Lab Lang 108 Wickham	Precision Measurement Lang 102 Wickham
2:00 - 3:00	H				
3:00 - 4:00					
4:00 - 4:30					

Week 2 Classroom Instruction

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 - 9:00					Computer Skills Lang 111 Crucetti
9:00 - 10:00	Precision Measurement Lang 102 Wickham	Intro to CNC Lang 205 Wickham	Pneumatic System Fabrication Lang 101 Ashdown	Intro to Mechatronics Lang 101 Ashdown	Computer Skills Resume Building Lang 111 Crucetti
10:00 - 11:00					Lean Guy Bucci Lang 205
11:00 - 12:00					Lunch & Learn (Guy Bucci) Inova Lang 205
12:00 - 1:00	Lunch & Learn Lang 205 <i>Robert Wernham GLOBAL</i>	Lunch & Learn Lang 205 <i>video</i>	Lunch & Learn Global Foundries Lang 205 <i>Ralph Coons Simmons</i>	Lunch & Learn Lang 205 <i>Rens Co one stop workforce</i>	
1:00 - 2:00					Lean Guy Bucci Lang 205
2:00 - 3:00	Introduction to Machine Tools Lang 108 Hamilton	Intro to CNC Machinery Lang 108 Wickham	Workmanship Skills Lang 101 Ashdown	Mechatronics and Troubleshooting Lang 101 Ashdown	
3:00 - 4:00					Summary Discussion
4:00 - 5:00					

MACNY APPRENTICESHIP PROGRAM



- Through the support of the Manufacturing Association of New York, starting in January 2018 CEG will be launching the MACNY Apprenticeship PILOT in the Capital Region.
- Under this program, CEG will serve as the intermediary between participating companies and the NYS Department of Labor.
- Throughout the course of Q1 2018, CEG will interview local companies to identify key trades to sponsor. This list of trades will be submitted to DOL along with an application for sponsorship. Once CEG and the selected trades are approved for sponsorship, we will begin to on-board apprentices (expected to be late Q2 early Q3).
- Once an individual is on-boarded into the program, CEG will serve as the sponsoring entity and will be responsible for each apprentice over the course of their 4 year training. This will include managing the records and reporting that is required by DOL, as well as organizing each apprentices outside coursework.

Trades mentioned by companies we have met with:

- Tool and dye making
- Machining
- Maintenance Mechanic
- Electrician
- Production Technician
- Electromechanical Maintenance Technician
- Electronics Technician
- Millwright
- Maintenance Machinist
- Electrician
- Plant Maintenance Mechanic
- Industrial Machinery Mechanic
- CNC Machinist
- Toolmaker
- Machine Tool Builder
- Welding

Apprenticeship FAQ

1. Is an apprentice an employee of my company?

Yes. We are recommending that the best candidates for an apprenticeship are existing entry level employees that show good work habits and are looking for future growth with the company

2. How are apprentices selected?

Each company selects its own apprentices from its current workforce.

3. How much do apprentices get paid?

One of the requirements of a registered apprenticeship program is a “wage progression.” The apprentice begins at an entry level salary and over the course of the training receives incremental increases as they successfully master the trade.

4. So, I’m interested in getting started, what happens next?

When you contact us (see below) we will schedule a time to meet you at your facility. You should probably have HR representation, an operations person, and someone from management with the authority to approve the program involved in the meeting.



Q&A

