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# **Worcester Area Manufacturing Workforce Competitiveness: A Report on the Status of the Industry July, 2007**



Quinsigamond Community College  
A community of support. A world of possibilities.

**Gail E. Carberry, Ed.D.**  
***President***

# Introduction

*For over 43 years, Quinsigamond Community College in Worcester, MA has provided thousands of men and women opportunities for first-rate education and personal growth, preparing them for immediate entry into the workforce, transfer to bachelor level programs in four-year colleges and universities, and/or for personal and cultural enrichment.*

*A major component of Quinsigamond Community College's mission is to support the development of the state's and region's business and industry community through direct service and through the production of graduates trained to meet the workforce requirements necessary for continued economic growth in the region.*

*As we look to the future, we are conscious of the workforce competitiveness challenges impacting the region including the convergence of an aging workforce, increasing global competition, and shortage of employees with comprehensive technical skills and knowledge base.*

*In March 2007, a Manufacturing Industry Workforce Competitiveness Forum session was conducted on campus. Additional information was captured via one-on-one phone interviews. Participants responded to a series of questions in an interactive format to discuss participants' views regarding business and industry trends, economic development, the employment climate, operational challenges, and employee productivity.*

*In the coming months, Quinsigamond Community College will seek to partner with the manufacturing industry to determine specific advancement steps and tactics to enhance the future labor pool and to improve the efficiency of current employees through the provision of quality degree, certificate, and training programs that produce well-trained and skilled graduates to support the manufacturing industry needs of the region.*

*President  
Gail E. Carberry, Ed.D.*

# Participants

- Micah Chase, President  
*Checkerboard Ltd*
- Al Cotton, Director  
*Corporate Communications, Nypro Inc.*
- Tom Geraghty, Vice President of Operations  
*EMC Corp.*
- Paul Kennedy, Manager  
*Kennedy Affiliated Industries, LLC*
- Art Kiritsis, Executive Director of Operations  
*Karl Storz*
- Jeff Lowe, Director of Operations  
*Fiber Optics, SCHOTT North America, Inc.*
- Kevin O'Malley, Intel Manufacturing Manager  
*Intel Massachusetts, Inc.*
- Alan Peppel, President  
*Dexter-Russell Inc.*
- Peter St. Pierre, Director of Finance and Operations  
*St. Pierre Manufacturing Corp.*
- Sam Wada, President  
*SMI MA Inc.*
- Jack Ward, Operations Manager  
*IPG Photonics Corp.*

# Industry Impact Snapshot

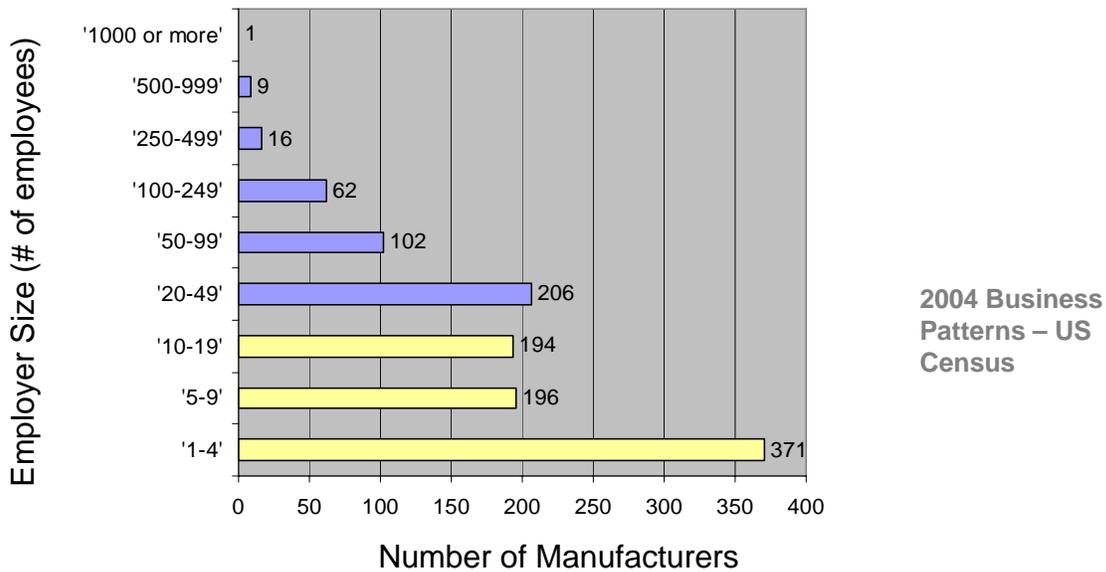
*The region's manufacturers employing over 40,000 individuals representing 14% of the Worcester MSA workforce*

Rank	Industry Code Description	Number of Employees	% of Total
1	Healthcare and social assistance	54,618	19%
<b>2</b>	<b>Manufacturing</b>	<b>40,027</b>	<b>14%</b>
3	Retail trade	39,941	14%
4	Accommodation & food services	23,314	8%
5	Finance & insurance	16,548	6%
6	Admin., support, waste mgt, remediation services	16,394	6%
7	Wholesale trade	14,930	5%
8	Professional, scientific, & technical services	14,419	5%
9	Educational services	13,781	5%
10	Construction	13,592	5%
11	Other services (except public administration)	12,916	4%
12	Transportation & warehousing	9,630	3%
13	Information	6,822	2%
14	Arts, entertainment, & recreation	5,017	2%
15	Real estate, rental & leasing	3,699	1%
16	Management of companies & enterprises	3,251	1%
17	Utilities	2,427	1%
18	Unclassified establishments	989	0%
19	Mining	205	0%
20	Forestry, fishing, hunting, and agriculture support	132	0%
	<b>Total</b>	<b>292,652</b>	<b>100%</b>

## **An Investment in Human Resources**

*The manufacturing industry ranks number one in the region with annual payroll expenditures of 2 Billion Dollars each year.*

# Industry Impact Snapshot



## Average Hourly Earnings Production and Non-supervisory Workers

Industry	2003	2004	Percent Change
Healthcare & Social Assistance	\$18.08	\$18.14	0.30%
Wholesale Trade	\$17.94	\$17.99	0.30%
Construction	\$15.44	\$15.54	0.60%
Mfg. Durable Goods	\$14.95	\$14.99	0.30%
All Manufacturing	\$14.54	\$14.60	0.40%
Natural Resources & Mining	\$13.71	\$13.79	0.60%
Mfg. Non-Durable Goods	\$13.28	\$13.40	0.90%
Retail Trade	\$11.89	\$11.94	0.40%

Note: Based on North American Industry Classification System

## Overview

- *This summary of findings contains a statistical analysis based on individual interviewee responses to direct questions, ensuing informal discussions, and conclusions drawn from the responses.*
- *Each person who participated in the forum was assured that his/her comments would be treated in confidence, and that any quotations used in this summary would not be attributed to any specific respondent.*
- *An analysis of responses is provided for each question, including a graph, data table, and/or representative respondent quotations.*
- *Statistics are based on the total number of interviewees who offered opinions in response to each question. Percentages are rounded to the nearest whole number.*

## Methodology

- *Participants were asked a series of questions in a closed response format followed by a group discussion and closed confirmation to identify ways in which the college's academic programs, career services, and corporate and professional programs could better serve local businesses and agencies.*
  - Data Collection Steps
    - Data Card Distribution
    - Question Review
    - Individual Brainstorming of Answer
      - Individual Answer Written on Data Card
    - Consideration
      - Individual Sample Answers
    - Group Feedback – Open Discussion
    - Answer Conclusion
      - Individual Revision of Answer Written on Data Card
      - Data Card Collection and Advance to Next Question
- *Phone participants were asked the questions in a one on one interview.*

# Industry Challenges

**Q1.**

**What are the top three challenges facing the manufacturing industry over the next three years?**

## Analysis

Rank	Responses	Frequency	Percent
1	Lack of skilled labor pool	7	64%
2	Expanding fierce global competition	6	55%
3	Escalating healthcare costs	3	27%
4	Keeping pace and increasing performance in a very competitive market	3	27%
5	Implementation of lean enterprise practices	3	27%
6	Expansion of the automation of production operations	3	27%
7	Increasing employee productivity rates	3	27%
8	Lack of a pool of engineering talent	2	18%
9	Increasing profit margin pressures	2	18%
10	Managing increasingly multi-language and culturally diverse employees	2	18%
11	Attracting people to seek careers in manufacturing	2	18%
12	Increasing prices of raw materials	2	18%
13	Retail consolidation that impacts manufacturers pricing power	1	9%
14	Retention of employees	1	9%
15	Loss of consumer's value of "Made in the USA"	1	9%
16	Identify and implement the right technologies	1	9%
17	Keeping employees current with new technologies	1	9%

*\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).*

## Group Discussion and Summary

Sixty-four percent (64%) of participants volunteered that the limited labor pool of qualified candidates is one of the top three challenges facing the manufacturing industry over the next three years.

In an open dialogue, participants voiced concerns that the industry is facing escalating fierce global competition that requires manufacturers to aggressively focus on optimizing operational efficiency.

# Industry Expansion

Q2.

How do you see your organization expanding over the next three years?

## Analysis

Rank	Responses	Frequency	Percent
1	Developing new products to meet customer needs and demands	8	73%
2	Capital investment in equipment to automate process	4	36%
3	Growing customer base by increasing marketing and sales focus	4	36%
4	Entering new market segments	4	36%
5	Adding value added products and services	3	27%
6	Increasing the volume of output from the current operation and facility	2	18%
7	Furthering outsourcing efforts	2	18%
8	Vertical integration into the direct retail market	2	18%
9	Expanding strategic partnerships	2	18%
10	Better define market niche to expand strategic advantages	1	9%
11	Limited support for growth in the region from home companies	1	9%
12	Expanding facilities	1	9%
13	Expanding workforce	1	9%
14	Creating a workforce for whom change is the norm	1	9%

## Group Discussion and Summary

Seventy-three percent (73%) of participants volunteered that developing new products to meet customer needs and demands is their planned method of expansion. A number of the participants voiced that product lifecycles seem to be shortening and resulting in the need for organizations to respond more quickly in retooling operations and workforce skills.

Thirty six percent (36%) of participants volunteered that they plan to focus on capital expenditures to automate production. In open discussion, a number of participants noted that to remain competitive, manufacturers in the region have significantly increased production levels, capacity, and revenues over the last decade by increasing workforce productivity by automating operations.

# Operational Challenges

**Q3. What are the top three operational obstacles that are impacting your organization's competitive efforts?**

## Analysis

Rank	Responses	Frequency	Percent
1	Lack of availability of skilled employees	5	45%
2	Training of current employees	4	36%
3	Implementation of lean and/or six sigma process	3	27%
4	Managing change in business model	3	27%
5	Increasing cost of raw materials	3	27%
6	Increasing energy expenditures	3	27%
7	Reduction in operating waste	2	18%
8	Increasing salary and benefit costs	2	18%
9	Increasing government regulations	2	18%
10	Poor image of the career opportunities in the manufacturing industry	2	18%
11	Limited availability of capital to fund expansion	2	18%
12	Increasing complexity of the product line	1	9%
13	Forecasting the growth of the business	1	9%
14	Increasing healthcare costs	1	9%
15	Evaluating, purchasing, and implementing new technology and equipment	1	9%
16	Implementing a unified ERP system to coordinate parallel production with other divisions	1	9%
17	Organizational development/learning to transition culture from small to large operation	1	9%
18	Attendance	1	9%
19	Employee retention	1	9%
20	Maintenance of aging equipment	1	9%
21	Ability/flexibility of workforce to do multiple jobs (backfill)	1	9%

*\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).*

## Group Discussion and Summary

In open discussion, a number of participants noted that the majority of the challenges cited are linked to the larger themes of labor pool shortages, workforce operational effectiveness, and management of increasing operational costs.

# Energy Challenges

**Q4.** What are the top three energy issues that are impacting your organization's competitive efforts?

## Analysis

Rank	Responses	Frequency	Percent
1	Increasing costs of electricity	10	91%
2	Increasing natural gas	4	36%
3	Reliability of the electric grid	3	27%
4	Implementing strategies to conserve energy	3	27%
5	Increasing cost of transportation	3	27%
6	Government taxes on energy consumption	2	18%
7	Inability to pass increasing cost onto customers	2	18%
8	Limited ability to negotiate rates	1	9%
9	Limited problem	1	9%
10	Awareness of new "green" technologies	1	9%

*\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).*

## Group Discussion and Summary

Ninety-one percent (91%) of the participants indicated that increasing costs of electricity is one of the top energy challenges they face. In an open discussion, participants noted that the increase of automated machinery requires a stable and consistent source of affordable electricity. A number of participants noted that in a global economy, manufacturing in this region is challenged by aggressive energy policies in other regions of the US and countries that give competitors an advantage. A number of participants noted the need to build management's knowledge of the energy tax policy and tax benefits.

In open dialogue, a number of participants voiced that as the cost of energy expenditures have soared they are searching for strategies to conserve all types of energy as well as "green" and alternative energy sources.

In further open dialogue, a number of participants noted that increasing energy costs are impacting transportation expenditures for employers shipping goods and that they are also taking larger portions of the paychecks of the employees commuting to work.

# Technology Challenges

**Q5. What are the top three technology issues that are impacting your organization's competitive efforts?**

Rank	Responses	Frequency	Percent
1	Training of employees	8	73%
2	Rapid pace of change	4	36%
3	Evaluation of new technology to determine return on investment	4	36%
4	Cost of new hardware, software, communication, and networking technology	4	36%
5	Managing and supporting legacy and new equipment	4	36%
6	Shorter and shorter product life cycles	2	18%
7	Facilitating a culture to manage adoption of new technology	2	18%
8	Integration of new software from floor to customers	2	18%
9	Handling an increasingly complex system of technology and equipment	2	18%
10	Limited availability of local technical support	2	18%
11	Sharing information and data across the organization	2	18%
12	Technology becoming a commodity	1	9%
13	Keeping information organized and accessible	1	9%
14	Implementing an ERP system	1	9%
15	Re-sharpening of cutting tools	1	9%
16	Uploading and downloading programs from computer to machine	1	9%
17	Being able to access newly available information critical to maintaining competitiveness	1	9%

*\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).*

## Group Discussion and Summary

Seventy-three percent (73%) of the participants indicated that the training of employees is one of the top technology challenges impacting the competitiveness of their organizations.

In an open dialogue, a number of participants noted that the speed of change in technology, cost of maintaining and upgrading technology, and determining a suitable return of investment are important considerations.

# Employment Climate

**Q6.** What are your top three concerns with the region's employment climate and its effect on the manufacturing industry?

## Analysis

Rank	Responses	Frequency	Percent
1	Lack of a pool of qualified skilled labor candidates	8	73%
2	Image and perception of limited prospects in manufacturing	7	64%
3	Lack of work ethic and professionalism	4	36%
4	Lack of a pool of unskilled labor	3	27%
5	Increasing cost of living in the area	3	27%
6	Increasing salary and benefits costs	2	18%
7	Increasing healthcare costs	2	18%
8	Recruitment of employees with a lean philosophy	2	18%
9	Lack of work ethic and professionalism	4	36%
10	Migration of young professionals out of the region	2	18%
11	Finding qualified temporary help	1	9%
12	Attracting people to the region	1	9%
13	Recognition of the importance of continuing education	1	9%

*\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).*

## Group Discussion and Summary

Seventy-three percent (73%) of participants indicated the lack of a pool of qualified skilled labor candidates as a top concern with the region's employment climate and its effect on the manufacturing industry.

Sixty-four percent (64%) of participants noted image and the perception of limited career prospects as top concerns.

In an open dialogue, a number of participants indicated that high operational costs, taxation levels, high cost of living, and migration of young people out of the state are major obstacles constraining the growth of the manufacturing industry in the region. A number of the participants voiced that the employment climate issues impact the expansion of current operations and the ability to attract new companies to the region.

# Employee Shortages

**Q7.** What are the top three occupational areas in which the industry is facing the most severe employee shortages?

## Analysis

Rank	Responses	Frequency	Percent
1	Product design (CAD/ CAM, technician)	4	36%
2	Production supervisors	4	36%
3	Supply chain management	3	27%
4	Mechanical engineers	3	27%
5	Lean and six sigma specialists	3	27%
6	Unskilled labor	3	27%
7	Maintenance technicians	3	27%
8	Manufacturing engineers	3	27%
9	Technician level (electronics, electrical, mechanical)	3	27%
10	Robotics specialists	2	18%
11	Research scientists	2	18%
12	Customer service representatives	2	18%
13	Senior management	2	18%
14	Operation managers	2	18%
15	Inventory control managers	2	18%
16	Sales representatives	1	9%
17	Web programmers	1	9%
18	Laser electro optics technician	1	9%
19	IT support technicians	1	9%
20	Polishing	1	9%
21	Skilled machinist	1	9%
22	Dimensional inspection technicians	1	9%

*\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).*

## Group Discussion and Summary

Participants identified twenty-two various areas in which the industry is facing the most severe employee shortages. A number of participants observed a high percentage of these areas as primarily technical-skilled occupations.

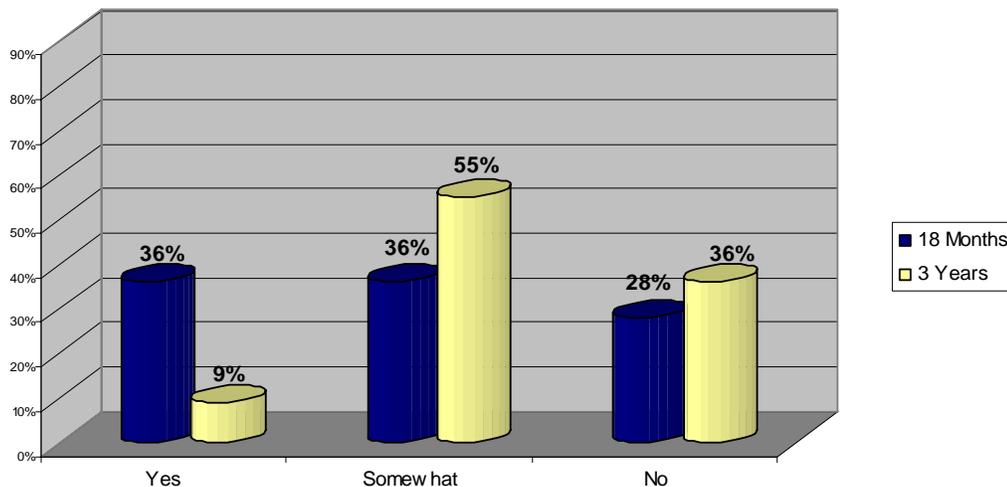
In an open dialogue, a number of participants suggested that many of the areas identified are clear progression steps in a career path from an entry-level position, to supervisor, to mid management roles that are directly related to educational attainment and career development efforts.

# Labor Pool: Labor-level Candidates

Q8.

Do you anticipate industry in the region having a large enough pool of qualified *line / labor level* candidates from which to draw employees in the next 18 months? In the next 3 years?

## Analysis



\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).

## Group Discussion and Summary

Sixty-four percent (64%) of respondents indicated that they do not, or only somewhat, anticipate having a large enough pool of qualified candidates from which to draw **line/labor-level employees** in the next 18 months.

Ninety-one percent (91%) of respondents indicated that they do not, or only somewhat, anticipate having a large enough pool of qualified **line/labor-level employee** candidates from which to draw employees in the next three years.

In an open discussion, respondents noted that the aging baby-boomer generation will retire over the next 5 to 7 years and leave a void in the manufacturing industry. A number of participants cited a limited growth in population and changes in government immigration policy as having a negative impact on the manufacturing industry's labor pool prospects.

# Line / Labor-level Employee Effectiveness

**Q9.** What are the top three areas of improvement that are most important in helping your present line / labor level employees become more effective in their jobs?

## Analysis

Rank	Responses	Frequency	Percent
1	English as a second language challenges	7	64%
2	Limited work ethic and professionalism	6	55%
3	Poor basic skills in English, reading, writing, and math	4	36%
4	Poor applied technical skills	4	36%
5	Limited computer skills (key boarding and basic computer applications)	3	27%
6	Turnover and lack of loyalty	3	27%
7	Adaptability and flexibility	2	18%
8	Increasing salary and benefit demands	2	18%
9	Individual versus team philosophy	2	18%
10	Lack of career advancement plans	1	9%
11	Bringing home issues to work	1	9%

*\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).*

## Group Discussion and Summary

Sixty-four percent (64%) of respondents indicated enhancing English as a second language skills as top areas of improvement important in helping their present **line/labor-level** employees become more effective in their jobs. A majority of participants (55%) added improving work ethic, business professionalism, and workplace behavior as areas for improvement.

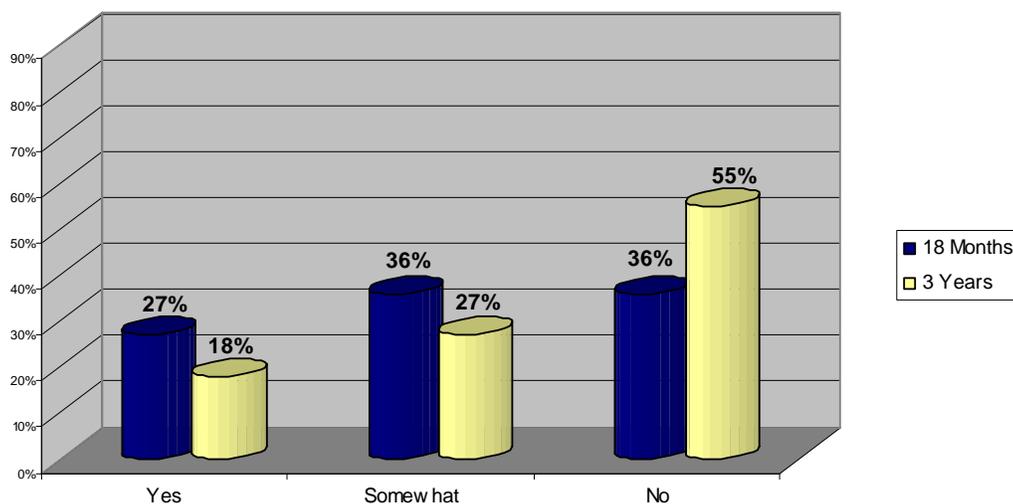
In an open discussion, a majority of participants confirmed that they feel that the level of their employees' basic writing, reading, and mathematic skills are poor. In an open discussion, participants noted that employees must be able to communicate to work as part of an advanced manufacturing operational team.

A number of participants suggested that to be productive, it is increasingly important that the employees have keyboarding skills, basic computer software applications (MS Office), and in some cases industry-specific inventory control or client management system software.

# Labor Pool: Technical Trade-level Candidates

**Q10.** Do you anticipate industry in the region having a large enough pool of qualified *technical trade-level* candidates from which to draw employees in the next 18 months? In the next 3 years?

## Analysis



\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).

## Group Discussion and Summary

Seventy-two percent (72%) of respondents indicated that they do not, or only somewhat, anticipate having a large enough pool of qualified candidates from which to draw **technical trade-level** employees in the next 18 months.

Eighty two percent (82%) of respondents indicated that they do not, or only somewhat, anticipate having a large enough pool of qualified **technical trade-level** candidates from which to draw employees in the next three years.

In an open discussion, participants noted that salary demands are rising for certified trade employees due to shortages of availability. A few participants noted that shortages are constraining and will likely continue to constrain operations.

# Technical Skill-level Employee Effectiveness

Q11.

What are the top three areas of improvement that are most important in helping your present technical skill-level employees become more effective in their jobs?

## Analysis

Rank	Responses	Frequency	Percent
1	Team building	6	55%
2	Lean / six sigma training	5	45%
3	Expanding technical skills	4	36%
4	Reduction of production variation	3	27%
5	Process design and controls	3	27%
6	Problem solving	3	27%
7	Change management	2	18%
8	Business 101 knowledge	2	18%
9	Computer application skills	2	18%
10	Industrial maintenance	2	18%
11	CNC programming	2	18%
12	Inventory management	1	9%
13	Robotics	1	9%
14	Project management	1	9%
15	Electronic technology, can't be trained in house	1	9%
16	Training on specific equipment	1	9%
17	Understanding of metallurgy	1	9%
18	Dimensioning and tolerances	1	9%

\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).

## Group Discussion and Summary

Fifty-five percent (55%) of the participants indicated improving team-building skills as a top area of improvement important in helping their technical-level employees become more effective in their jobs. Forty-five percent (45%) of participants indicated improving the knowledge of Lean Enterprise or Six Sigma Process as an area for improvement.

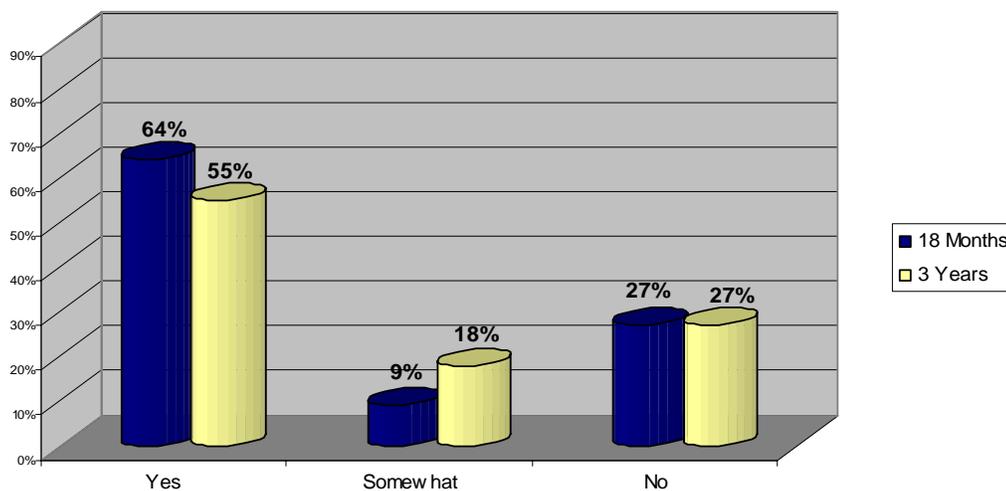
A number of participants volunteered that to remain competitive employees must participate in training programs or continuing education to build their knowledge and skills to have the ability to adopt new techniques and utilize new equipment.

In further open discussion, participants cited the need for current technical-skilled employees to acquire new skills including: business 101 knowledge, change management, critical thinking, and problem-solving skills.

# Labor Pool: Qualified Supervisory Candidates

**Q12.** Do you anticipate industry in the region having a large enough pool of qualified *supervisory-level* candidates from which to draw employees in the next 18 months? In the next 3 years?

## Analysis



\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).

## Group Discussion and Summary

Sixty-four percent (64%) of respondents indicated that they anticipate having a large enough pool of qualified supervisory-level candidates from which to draw employees in the next 18 months.

Fifty-five percent (55%) of respondents indicated that they anticipate having a large enough pool of qualified supervisory-level candidates from which to draw employees in the next three years.

A majority of participants noted that they hire supervisors predominantly from within their organizations. However, several added that a high number of current workers who could be prospective supervisors are in a later career stage or are not interested in advancement. A number of participants noted that they are providing formal or semi-formal training programs to grow future supervisory-level employees.

# Supervisory-level Employee Effectiveness

**Q13.** What are the top three areas of improvement are most important in helping your present *supervisory-level* employees become more effective in their jobs?

## Analysis

Rank	Responses	Frequency	Percent
1	Leadership skills	6	55%
2	Team building	6	55%
3	People management	5	45%
4	Communication skills (written, oral, and listening)	4	36%
5	Coaching and mentoring	3	27%
6	Project management	3	27%
7	Critical thinking and problem solving	3	27%
8	General Business 101 knowledge	2	18%
9	Performance management	2	18%
10	Observation and evaluation	1	9%
11	Conflict resolution	1	9%
12	Must be capable trainers	1	9%
13	Understanding ERP system	1	9%

*\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).*

## Group Discussion and Summary

Fifty-five percent (55%) of the participants indicated improving leadership skills in helping their supervisory-level employees become more effective in their jobs. A majority of participants (55%) indicated improving team-building skills as an area for improvement.

In an open discussion, participants cited the need for supervisors to improve conflict management, coaching, team building, accounting, and time management skills. A few participants added working knowledge of human resource legal issues, business accounting and finance, and government regulations as increasingly important.

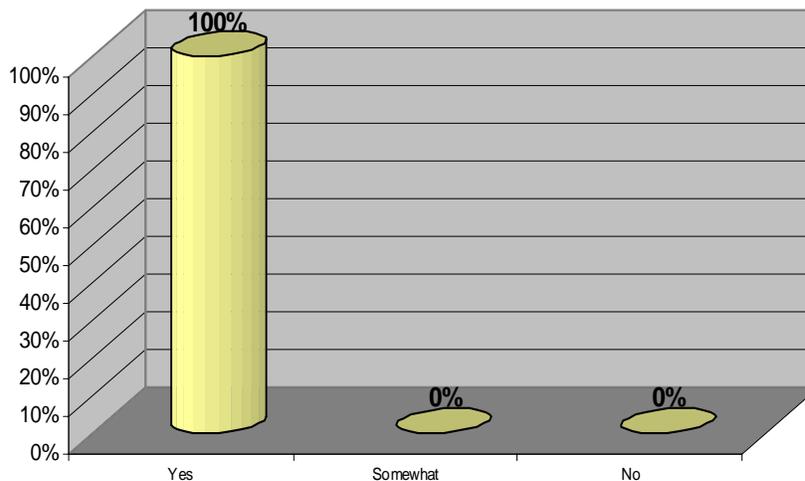
A few participants volunteered that they have developed supervisor training programs to grow a pool of potential next generation supervisors to replace aging baby boomers who will retire in the coming years.

# Internships and Co-op Program

Q14.

Do you feel that students should participate in internship, apprenticeship, or mentoring programs prior to graduating?

## Analysis



\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).

## Group Discussion and Summary

One hundred percent (100%) of participants indicated they believe that students should participate in internship, apprenticeship, or mentoring programs prior to graduating. A majority of participants voiced that they hope to receive a return on investment by securing interns for future employment.

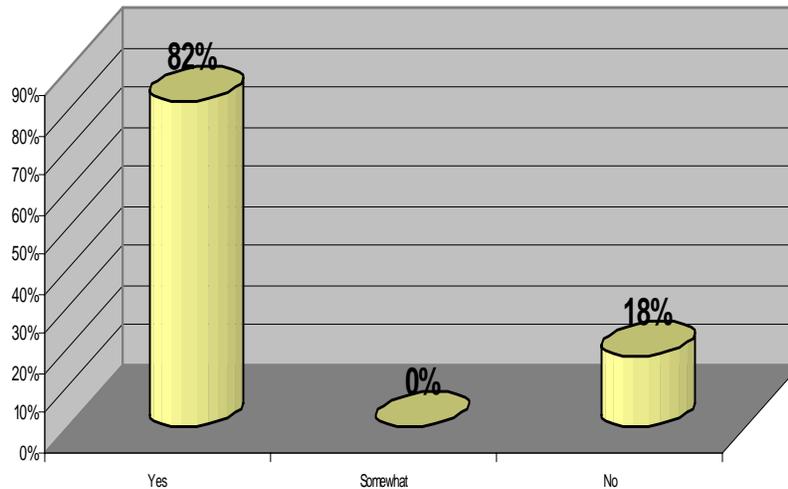
A number of the participants noted the top concern they have in working with student interns/apprenticeships is that the short placements are not long enough to get full exposure to the industry and company operations. A number of participants suggested that proper screening of applicants and communicating clear expectations of roles and goals are very important.

# Internships and Apprentices Program

Q15.

Would your organization be willing to provide internships, apprenticeship, or mentoring opportunities to QCC students?

## Analysis



\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).

## Group Discussion and Summary

Eighty-two percent (82%) of participants indicated they believe their organizations would be interested in partnering to place students.

A significant number of participants noted that they are currently providing or have recently provided internship opportunities. A few participants are collaborating with colleges from outside of the region and state to secure interns.

A number of participants noted that they are collaborating with vocational and high schools and reaching into K-12 to build career and industry awareness. Other participants voiced that starting early is the key to building awareness, a work ethic, general industry knowledge, and a curiosity about future employment opportunities in the industry.

# Partnering

**Q16.** What three areas do you believe that “partnering” with the college can improve your industry and your organization’s chances or success?

## Analysis

Rank	Responses	Frequency	Percent
1	Supervisory training and certification program	8	73%
2	Lean and six sigma training and certification programs	6	55%
3	Build awareness of the industry and economic impact	5	45%
4	Custom training programs	5	45%
5	Expansion of internship programs	4	36%
6	College continuing to lead in partnering with industry efforts	3	27%
7	Promote career opportunities and paths in manufacturing	3	27%
8	CAD and CAM training	2	18%
9	CNC programmers	2	18%
10	Facility tours and guest speakers	2	18%
11	Supply chain management classes	2	18%
12	Basic computer application skills	2	18%
13	Operation management and process controls classes	2	18%
14	Robotic technician programs	2	18%
15	English immersion program	2	18%
16	Use college as an "internal training provider"	2	18%
17	Job sharing program with part-time students	1	9%
18	Communication skills (written, oral, and listening)	1	9%
19	Train troubleshooting skills	1	9%

*\* Percentage is calculated by dividing the number of responses by the total number of participants responding to the question (n=11).*

## Group Discussion and Summary

Seventy-three percent (73%) of participants indicated providing supervisory training and/or certification programs as an area that “partnering” with the college can improve the industry and their organizations’ chances for success. Fifty-five percent (55%) of participants indicated that a focus on partnering on Lean Enterprise and/or Six Sigma Process services would improve the industry.

In an open discussion, participants noted the need for the industry and the college to partner to build awareness of the industry, economic impact, and career path opportunities.

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Quinsigamond Community College

A community of support. A world of possibilities.

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**Worcester, MA 01606**

**[www.qcc.edu](http://www.qcc.edu)**

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