How To Solve Your Manufacturing Talent Issues & Maintain Global Competitiveness
YESTERDAY’S JOBS
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By 2030, approximately 85% of the jobs taken by today’s learners have not been invented yet.
The Fourth Industrial Revolution is Underway

1. Mechanization, water power, steam power
2. Mass production, assembly line, electricity
3. Computer and automation
4. Cyber Physical System
Don’t Confuse Trends & Technology!
Trends
GNP Growth is a Simple Equation

Productivity Growth + Workforce Growth = GDP Growth
Unless humanity finds new ways to do more with the same amount of labour and capital, growth in incomes peters out to nothing.

– *The Economist*
WHY PRODUCTIVITY?

Productivity = Wages
Is it better to show productivity growth since WW2?

DECLINING PRODUCTIVITY

Map 2. Number of metro areas exceeding 1% annual productivity growth declined dramatically in recent decade

Source: Brookings analysis of Moody’s Analytics data. Labor productivity defined as output per worker.
It’s not about replacing people with machines—it’s about maximizing efficiency with a combination of the latest technology and highly skilled workers who understand that technology.
IMPROVING PRODUCTIVITY

- Efficiency of workers
- Investing in new equipment
- Developing new technologies
- Improving supply chain management
- Transforming production processes
- Mining data for operational trends
HOW TO GET THERE?

- Assist manufacturers in benchmarking their performance against others in their NAICS code
- Assist best-in-class firms in expanding the frontier through technology, operational and business innovation that will define the best practices of tomorrow
- Identify and quantify performance gaps
- Provide a roadmap, guidance and resources required to close the gap
Top performers maintain their competitive advantage by innovating and excelling in five key areas:
Transformational Productivity Progression

YEAR

PERCENT PRODUCTIVITY INCREASE

SMART MANUFACTURING
RIGHTSIZED AUTOMATION & ROBOTICS
IDENTIFY & CLOSE BEST PRACTICE GAPS

Entry points vary per company
### 30% Productivity Possible

<table>
<thead>
<tr>
<th>Pilot</th>
<th>FTE's</th>
<th>MOPS</th>
<th>Estimated % Productivity Improvement</th>
<th>Human Capital</th>
<th>Growth</th>
<th>Leadership</th>
<th>Operations Excellence</th>
<th>Technology</th>
<th>Average</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>60</td>
<td>0.47</td>
<td>38%</td>
<td>3.3</td>
<td>3.3</td>
<td>2.3</td>
<td>1.5</td>
<td>2.2</td>
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<td>B</td>
<td>&gt;500</td>
<td>0.69</td>
<td>9%</td>
<td>4.0</td>
<td>3.3</td>
<td>3.2</td>
<td>3.5</td>
<td>3.7</td>
<td>3.5</td>
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<tr>
<td>C</td>
<td>154</td>
<td>0.41</td>
<td>51%</td>
<td>3.8</td>
<td>3.2</td>
<td>1.8</td>
<td>2.5</td>
<td>3.6</td>
<td>3.0</td>
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<tr>
<td>D</td>
<td>70</td>
<td>0.59</td>
<td>27%</td>
<td>3.4</td>
<td>2.9</td>
<td>2.0</td>
<td>2.1</td>
<td>1.8</td>
<td>2.4</td>
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<tr>
<td>Average</td>
<td>196</td>
<td>0.54</td>
<td>31%</td>
<td>3.6</td>
<td>3.2</td>
<td>2.3</td>
<td>2.4</td>
<td>2.8</td>
<td>2.9</td>
</tr>
</tbody>
</table>
FACTOR RANK ORDER OF IMPORTANCE

1. Leadership (Management Practices)
2. Operational Excellence
3. Technology
4. Growth
5. Human Capital

- Leadership, operational excellence and technology most critical to improving productivity @ pilot firms
The Go-To Experts for Advancing U.S. Manufacturing
More than **122,000 Jobs** Created or Retained

- **$16.0 BILLION** in New and Retained Sales
- **$4.0 BILLION** in Total Investment in U.S. Manufacturing
- **$1.7 BILLION** in Savings

Numbers are based on survey results from MEP Center clients.
Your Manufacturers Are Not Ready!
NEW Manufacturing Alliance’s Industry 4.0 Study
Study Background

- 104 northeast Wisconsin manufacturers completed the online survey between February 2019- April 2019
- All manufacturing sectors: metal, paper, and allied products, along with machinery
- Median size of respondents 101-250 employees
- 2/5 of companies had between $1 million - $15 million or more in total annual sales in 2018
- 50% of companies had more than $30 million in sales in 2018
MANUFACTURERS NOT PLANNING

Industry 4.0 Planning

- No Plan: 35%
- Partial Plan: 5%
- Complete Plan: 53%
- Not Sure: 7%
Not sure which trends will impact the most

- Changes in the Political Environment
- Competitive Innovation
- Aging Workforce
- Health Care
- Changes in Business-to-Business Technology
- Changes in Consumer Technology
- Changes in AI/Machine Learning
- Changes to Natural Env. or Sustainability
- Population Growth
- Changes in the Attitudes and Values of the Population
- Changes in Blockchain
- Changes in Consumer Technology
- Changes in Block Chain
- Changes in the Political Environment

Not at All/To a Limited Extent  |  To a Moderate / Great Extent

- Changes in Blockchain: 79% not at all/to a limited extent, 21% to a moderate/great extent
- Changes to Natural Env. or Sustainability: 72% not at all/to a limited extent, 29% to a moderate/great extent
- Changes in AI/Machine Learning: 66% not at all/to a limited extent, 34% to a moderate/great extent
- Changes in Consumer Technology: 56% not at all/to a limited extent, 45% to a moderate/great extent
- Changes in Business-to-Business Technology: 56% not at all/to a limited extent, 45% to a moderate/great extent
- Population Growth: 50% not at all/to a limited extent, 50% to a moderate/great extent
- Changes in the Attitudes and Values of the Population: 42% not at all/to a limited extent, 59% to a moderate/great extent
- Health Care: 39% not at all/to a limited extent, 61% to a moderate/great extent
- Aging Workforce: 38% not at all/to a limited extent, 62% to a moderate/great extent
- Competitive Innovation: 36% not at all/to a limited extent, 64% to a moderate/great extent
- Changes in the Political Environment: 35% not at all/to a limited extent, 65% to a moderate/great extent
<table>
<thead>
<tr>
<th>Technology</th>
<th>Increase</th>
<th>Stay the Same</th>
<th>Decrease</th>
<th>Not Sure</th>
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</thead>
<tbody>
<tr>
<td>Automation-Robotics</td>
<td>62%</td>
<td>26%</td>
<td>2%</td>
<td>10%</td>
</tr>
<tr>
<td>Cybersecurity</td>
<td>56%</td>
<td>34%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Cloud Computing</td>
<td>56%</td>
<td>33%</td>
<td>1%</td>
<td>10%</td>
</tr>
<tr>
<td>Industrial Internet of Things</td>
<td>48%</td>
<td>38%</td>
<td>1%</td>
<td>13%</td>
</tr>
<tr>
<td>Smart Integration</td>
<td>48%</td>
<td>37%</td>
<td>1%</td>
<td>14%</td>
</tr>
<tr>
<td>Big Data Analytics</td>
<td>47%</td>
<td>36%</td>
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<td>17%</td>
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<tr>
<td>Computer Science</td>
<td>38%</td>
<td>46%</td>
<td>3%</td>
<td>13%</td>
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<tr>
<td>Artificial Intelligence</td>
<td>37%</td>
<td>42%</td>
<td>1%</td>
<td>21%</td>
</tr>
<tr>
<td>Simulation</td>
<td>30%</td>
<td>51%</td>
<td>1%</td>
<td>18%</td>
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<tr>
<td>Additive Manufacturing</td>
<td>25%</td>
<td>49%</td>
<td>2%</td>
<td>25%</td>
</tr>
<tr>
<td>Virtual/Augmented Reality</td>
<td>22%</td>
<td>49%</td>
<td>1%</td>
<td>28%</td>
</tr>
</tbody>
</table>
NOT SURE ABOUT SKILLS NEEDED...

Increasing (75%)
• Data Management Analyst
• Process Engineer
• Cybersecurity Officer
• Data Architect

Decreasing (25%)
• Virtual Reality/AI Specialist
• Industrial UX/UI Designer
• Industrial Data Scientist
• Digital Thread Engineer
PROCESS ENGINEERS- EVERYBODY WANTS ONE
Lead & Help Your Manufacturers Flourish!

• Your MEP can help!
MANUFACTURING FORWARD
A forward-thinking series for manufacturers

WHAT MANUFACTURING FORWARD IS:
This by-invitation-only series is designed to assist the region’s manufacturers in understanding the implications of 4.0, productivity, automation and other trends, and will provide specific case studies for implementation. The series is specifically geared to manufacturers with 75 to 225 employees. Nominations/acceptance from your financial institution, accountant or attorney.

WHY YOU SHOULD ATTEND:
Manufacturers will gain an edge to stay globally competitive and in a state of readiness. Each session will provide practical resources so you can implement and further explore the topic.

TIME COMMITMENT:
Five, half-day educational sessions
LOCATION:
TBD
DATES:
Fall 2019; monthly
INVESTMENT:
$350 per company sponsorship

REGISTER TODAY!
Space is available for up to 30 companies to participate; registrations will be processed in the order received. To register, please contact Luren Coolig, Greater Green Bay Chamber economic development, 920-446-3102.

IN PARTNERSHIP WITH:
SESSION 1: ORGANIZATIONAL STRUCTURE & CULTURE
• Why does organizational structure and culture matter now more than ever?
• Cohort/intros/contact exchange/LinkedIn group will be created for discussions

SESSION 2: STRATEGY & ALIGNMENT FOR OPERATIONS
• Culture of performance
• Leadership

SESSION 3: OPERATIONAL EXCELLENCE
• What IoT means to me & automation
• AI & connected systems

SESSION 4: TECHNOLOGY IMPLEMENTATION
• Supply chain transparency demands from your largest customers
• Cyber security 101: Where do I start?

SESSION 5: HUMAN CAPITAL MANAGEMENT
• Talent: How to prioritize talent acquisition, retention & development
Who’s the Cybergrook?
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