Industry 4.0: Ready, Willing, and Able?

by Bob Zaruta, President/CEO, NWIRC

Industry 4.0 is here. The advancement of today’s manufacturing via the combination of automation, data exchange, cloud computing, and many other new manufacturing technologies. An increasing number of manufacturers, including small and mid-sized companies in Pennsylvania, are making investments and strides towards that goal. Are you ready, willing, and able to seize the opportunity?

The PA Manufacturing Extension Partnership (MEP), of which NWIRC is a part, recently completed a project to learn more about Pennsylvania’s ability to access and implement Advanced Manufacturing Technology (AMT). Interviews were conducted among manufacturers in PA to gauge their utilization of state-of-the-art technology, thus assessing their adoption of Industry 4.0. From the preliminary findings, 81% of the companies said they have invested in some form of AMTs. Of those, the specific technologies were cited as ERP systems (76%), robotics (51%), multi-function machines (51%), digital design (39%), and additive manufacturing (34%). The benefits these manufacturers realized from their AMT investment are increased productivity (72%), company growth (55%), and 55% thought they had greater competitive advantage. These companies reported their top business issues as finding and keeping talent, growing customer base, and cost control...all of which can benefit from technology as part of the solution. That being said, half of the manufacturers surveyed said they are looking for additional training on available advanced manufacturing technologies and one-third would like information on potential impact.

Boston Consulting Group (BCG) conducted a survey to assess U.S. manufacturers adoption of Industry 4.0 and its challenges. BCG found the majority of companies surveyed felt Industry 4.0 was a priority, but it was not yet imperative. Their report notes that manufacturers recognize the potential of Industry 4.0 to create value, but don’t fully appreciate the scope and ability to find the path to success. Respondents cited defining a strategy as the biggest challenge in initiating efforts to adopt Industry 4.0, followed closely by rethinking their organization and processes.

For manufacturers in northwestern PA still determining how to start their transformation, the bottom line is to approach Industry 4.0 with a plan…from self-assessment to implementation. Here are just a few initial action steps to get started: 1) educate yourself on the technologies available, 2) identify how the new technologies can positively affect areas of your business from supply chain management to the shop floor, 3) prioritize key issues or improvements you’d like to address first and what technology(ies) can help, and 4) assess the skills needed for your workforce to be successful. Also, based on survey results validating that manufacturers would like more information on available technologies and their benefits, seek an independent and knowledgeable partner to help with steps along the way. Stay tuned with NWIRC as we continue and enhance our Industry 4.0 journey to assist manufacturers in northwest PA with more education on current trends in technology and help with their plan for transformation.

Training within Industry

Most are familiar with Rosie the Riveter, the cultural icon who became symbolic for the new workforce during World War II. Many within this workforce were women who went to work in factories replacing men going off to the war. But how did the new workforce get trained? Training within Industry (TWI) was an emergency service developed during WWII to continue the production of materials at an accelerated pace. This method of training unskilled workers was abandoned after the war was over, but soon after adopted by Japan to help them quickly train employees and reestablish
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Their industrial base. In the 1950’s, Toyota used TWI as part of the emerging Toyota Production System...the world’s first Lean Manufacturing Program.

Today, global resource TWI Institute, has fostered methods of training known as the J-Programs (J=Job). Job Instruction is one of the J-Programs that specifically focuses on training supervisors (or anyone responsible for the work of others) how to breakdown a job and then properly instruct someone so they effectively learn the task(s). Job Instruction requires finding the “one best way” and provides a repeatable way to train every time. More and more companies are finding success with this methodology in a variety of industries, including manufacturing and healthcare. Job Instruction enables companies to efficiently transfer years of knowledge from retiring employees and shortens training time for even entry level employees.

Side note: A 10-hour Job Instruction training course is scheduled for Sept 6-8. Contact Molly Reichard at (814) 898-6888 to be placed on the roster.

The Next Generation Owner
by Susan Hileman, NWIRC Strategic Business Advisor

Achieving buy-in from senior executives and decision-makers can be difficult without clearly defined expectations, roles, targets and goals. When those “senior executives and decision-makers” are Mom and Dad, that adds another layer of complexity. The newest generation—and next generation owner—often brings talents and ideas that are different from previous generations. While sometimes increasing friction within the business, it can also pave the way to a better business and more profits when their voice is brought to the table and given opportunities to work. Here are a few that might be considered:

• Using digital technology to increase business productivity. From ERP systems to CRMs and production monitoring systems, deep rooted practices of “that’s the way we’ve always done it” and “if it’s not broke, don’t fix it” are prominent when it comes to making business decisions about significant investments in digital technology. While a learning curve exists for all new processes, next generation business owners have never known life without digital technology and tend to embrace the ever-changing landscape of IT resources, seeing technology as a tool to increase knowledge, streamline decision-making and provide efficiencies.

• Achieving a work-life balance and still maintaining a successful business. Millennials want to work in a fun, family-friendly environment. Most would assume a family owned business would not have to be concerned with being “family friendly” but nepotism can exert a negative influence in the business when there are long-seated rivalries or issues left unaddressed. And while some women in family businesses have unique opportunities to balance demands, it’s common for many owners today to work 60 or more hours per week. Identifying these issues and their adverse impacts, then developing a plan to resolve them, is imperative for the health and welfare of the business—as well as that of the employees and owners of all generations.

• Strengthening the business by building diversity. From ethnicity, to gender, to age, the next generation owner recognizes that diversity brings strength to the organization. In addition to attracting new talent, a diverse workforce can provide a competitive advantage by offering new ideas and perspectives thereby providing better workable solutions. It can also present new opportunities for business growth, for example, by delivering a different approach or bridging a language gap with potential new customers.

The goal of any business owner is to position the company so the next generation owners can assume leadership and successfully continue to run the business. Yet changes in processes and culture take time. The NWIRC can objectively help family businesses clearly define expectations, roles and goals to navigate these waters with success. Incremental steps can be developed to insure next generation owners feel the freedom to take on new responsibilities, gain skills and provide positive contributions into the business.

Susan Hileman is a Strategic Business Advisor at NWIRC. She is a Galliard trained Family Business Advisor, an Innovation Engineering Green Belt, and has degrees in Business Management and Speech Communications from Clarion University.

Diversifying through Strategic Lead Generation
by Michael Griffith,
Manufacturing Technology Engineer, NWIRC

Manufacturers in northwestern Pennsylvania collectively provide products, parts and services to a wide range of industries including transportation, oil & gas, mining, continued on Page 3
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industrial machinery, automotive parts, electronics, aerospace & defense, medical, rubber & synthetic fibers, and consumer products to name a few. Best practices not only suggest that manufacturers should not concentrate more than 10% of sales with any one customer or 25% of sales with five customers, but also to diversify sales across multiple industries. Such high customer concentration significantly increases risk of lost revenues (either to competitors or during economic downturns in the major industry served), increases lending costs, and lowers the perceived value of the business. Manufacturers who find themselves with high customer concentration should immediately look to diversify their customer base utilizing a five-step process:

1. **Assess your business and your customers**
   The most common tools for assessing your business and current customers are a SWOT Analysis and an Ideal Customer Profile. The SWOT (Strengths, Weaknesses, Opportunities and Threats) Analysis considers the value you provide your customers now and in the future, and answers the questions, Why do customers buy from us? and How can we improve the value we offer?
   An Ideal Customer Profile defines who your best customers are in specific terms such as industry code, products or services sold, geographic location, number of employees, annual sales, markets served, level of technology employed, etc. Defining your best customers in specific terms helps to narrow focus as you seek out new customers.

2. **Conduct a competitive assessment**
   An analysis of your competitors not only helps to assess how your products and services compare to your competitors’ offerings, but also offers insight into what customers may be seeking that you are not currently providing. Essentially, a competitive assessment helps to answer, why do customers buy from competitors instead of us?

3. **Research potential markets**
   Diversifying your customer base into new markets may require broadening your reach into as many new markets as possible, some of which may be better suited than others. Market research on potential markets can help assess which markets are growing and which are declining, which markets are saturated with suppliers and which provide opportunities for new entrants, where customers are concentrated, and what factors affect market trends.

4. **Develop a new business growth plan**
   Armed with intelligence about your business’s value, ideal customer profile, competitive landscape and potential new markets, you can develop a new business growth plan. The new business growth plan details who to contact, how to reach out to prospective customers, and what to say to quickly qualify need and fit for a new business relationship.

5. **Conduct new business development activities**
   New business development activities include identifying specific companies and contacts to target and conducting outreach in accordance with the developed plan.

Following these lead generation and business development steps can help a manufacturer strategically reduce customer concentration, minimize risks to economic downturns, and grow its business through new customer opportunities. To learn more about resources available to help diversify your customer base, contact your NWIRC Business Advisor.

Michael Griffith is a Manufacturing Technology Engineer at NWIRC. Over the years, he’s held various positions within manufacturing and received both his bachelors in Chemical Engineering and Masters of Business Administration from Penn State University.

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**Education in Lean Accounting**

For companies who have embarked on applying lean thinking and practices, they may not have thought about the role of the management reporting information and the accounting team in supporting this transformation.

Jean Cunningham, as a CFO of two manufacturing companies and consultant to lean organizations, has lived this change and found a new improved role for accounting to provide better value information to the organization as well as reduced the effort required for accounting operations.

Cunningham is the co-author of *Real Numbers*, along with Orest Fiume. Their book offers personal experiences that illustrate the ‘whys’ and ‘hows’ of lean accounting. The management accounting model illustrated in -Real Numbers- points the way to unlocking the true profit potential of lean.

NWIRC will offer a Lean Accounting course on October 24, 2017, with instructor Jean Cunningham, so companies in our region can learn from her experiences and insights. Participants will receive a copy of *Real Numbers*. Find more information at www.nwirc.org/events.
YOUR STRATEGIC BUSINESS ADVISORS

If you have questions, or would like to speak with someone from NWIRC about services, please contact your Strategic Business Advisor:

Tom Weible  
814.590.5202  
Cameron, Clarion, Clearfield, Elk Jefferson, McKean & Potter Counties

Susan Hileman  
814.572.2077  
Crawford, Forest, Mercer & Venango Counties

Ed Barthelmes  
814.923.3084  
Erie & Warren Counties

UPCOMING EVENTS

Sales Process Mapping Workshop  
July 18, Aug 24, Sept 26  
Locations: Erie, St Marys, Titusville  
This 1-day workshop will help your organization become more proactive, qualify leads more effectively, and stay in alignment to your customers buying process, both procedurally and behaviorally, for greater efficiency.

IATF 16949:2016 Internal Auditor  
July 11-13  
Aug 8-10  
Locations: St Marys, Erie  
Training of this automotive standard will provide understanding of quality management principles in context with ISO 9001:2015 and the IATF 16949:2016, along with techniques of process-based auditing. Compliance to this new standard is required by Sept. 2018.

TWI: Job Instruction  
Sept 6-8  
Location: Erie  
Job Instruction requires you to identify the ‘one best way’ and train to that way. This 2 1/2 day class teaches the method to instruct operators how to perform a job correctly, safely and conscientiously. Benefits experienced when practicing Job Instruction are reduced training time, less scrap and rework, fewer accidents, and increased job satisfaction.

ISO 9001:2015 Internal Auditor  
Sept 12-14  
Location: St Marys  
This 3-day course will provide a detailed review of the quality standard, including the most recent changes. Participants will learn how to conduct an audit, write the audit report, take corrective actions, and more.

For more information or to register for training, visit www.nwirc.org