The Art of Transferring Knowledge

by Bob Zaruta, President/CEO, NWIRC

During my first six months at the NWIRC, a top priority of mine has been to travel our 13 county regional footprint to meet with manufacturing company owners and CEOs. I’ve had the opportunity to learn about their companies, tour facilities, and meet some of their employees. We’ve discussed their key concerns, critical business issues, and strategies and goals for growth. Most of them continue to deploy cost reduction strategies like 2 Second Lean, Kaizen Events, and Six Sigma. Many want to diversify their business by identifying new markets and growing revenues from new customers.

Seemingly, all of them are facing an aging workforce dilemma and a typical scenario that looks like this: Bruce is retiring in June. He is as skilled a tooling guy as you could find. During his long career in manufacturing, the last 35 with his current employer, he has learned and perfected his craft. He has developed an impressive skill set and has accumulated a vast amount of job specific knowledge, techniques, and tips to efficiently accomplish his tasks. He is not a trainer by trade, but he has assumed this role with new hires and apprentices by using show and tell – “watch me, this is how it’s done.” He has contributed significantly to the success of the business throughout the years, and his capabilities and services have been highly valued and appreciated by all company employees.

Bruce has a few co-workers who will also be retiring soon. Some are die setters or machine operators and some perform machine maintenance and repair.

There has been a great amount of attention and discussion in recent years about the shortage of skilled workers needed to fill current openings for manufacturing positions. But the story of Bruce represents the, equal or greater, threat of institutional knowledge leaving the company. Manufacturers know they need to recruit, train, and develop employees to replace those who will be exiting their workforce. However, they don’t necessarily have a handle on the best way to address the vast experience and accumulated knowledge that literally resides in the minds of long-tenured employees. They have not captured and documented the best practices and lessons learned to do a specific job over the years. And, they have not standardized the process to train other employees on the best way to do a job.

Manufacturers who employ people like Bruce, that want to increase productivity and effectively prepare the next generation of employees, need to act sooner rather than later. Proven methods exist to breakdown jobs, capture the accumulated knowledge and best techniques, and create work instructions to do jobs the right way with greater consistency. In addition to standardizing work, these proven methods enable companies to standardize on the way to train others. As a result, the onboarding process of new employees is improved; overall productivity increases; quality improves; and the work place is safer. The employees feel good about their contributions, management rests a little easier about the future workforce, and the company’s hidden assets are preserved.

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noise frequency control products; applications requiring exact timing function. Keith Szewczyk, CEO/Director, said the company is in an 85-year old industry and, over the years, a lot of the low-end technology in the industry has moved to be manufactured in Asia. Bliley now centers their focus on high-end products for technology industries such as aerospace, defense, and communications. Their goal is to continue to grow business profitably by diversifying into new markets that demand their technology and manufacturing capabilities. “We have our eye on the fastest changing technology of PNT (positioning, navigation, and timing). This is where autonomous vehicles fit in and they need our technology,” said Szewczyk. Szewczyk has been at Bliley a little over a year now. He brought with him a ‘start-up’ mindset and wanted to recreate the way employees think about products and the organization. “I refer to Bliley as a re-start-up company, because we were sitting on some intellectual property (IP) that hadn’t yet been commercialized in a big way,” he said. “We knew the problems our technology could solve, but we didn’t know much about the market out there. We weren’t sure about the market and how to approach the first sale.” He acknowledged that companies usually would do a return on investment (ROI) analysis before going to market with something new, but they needed to learn more about the market itself first. They didn’t have the tools, methodologies and resources to do an in-depth market research, so they began with a ‘start-up company’ approach which landed them a few customers they didn’t expect. Knowing that was the tip of the iceberg, they wanted to engage an outside resource to do the deep-dive research and fill in the blanks in terms of future opportunities. That’s when they engaged the Northwest Industrial Resource Center (NWIRC). “We liked NWIRC’s approach with TDMI (technology-driven market intelligence) methodology and their support from resources at RTI International. We have all participated in brainstorming types of activities, but this process was much more structured for leading to results you can use,” Szewczyk said. Bliley leadership had the capabilities to do the research, but lacked the time and efficient process.

TDMI provides a systematic and comprehensive approach to technology focused market assessments. Michael Griffith, Manufacturing Technology Engineer at NWIRC, facilitated the TDMI project. He explained several goals for the research to answer questions, such as 1) what price point these emerging technology markets are willing to pay for this high-end product, 2) what is the market size, 3) what is the timing of when the product would be needed, 4) what technology currently exists that could use the product, and 5) could Bliley’s product help progress the overall timing of the emerging technology. One of the most productive steps in the process was the ‘mind mapping’ activity to free think outside the box uses for Bliley’s technology and laying out what a potential customer could look like. Szewczyk said he feels most companies don’t spend enough time understanding their products’ long-term or future market potential . . . ‘what it looks like 5 years or more down the road’. He referenced that most spend time prospecting who is out there now to use their product and go after those customers for an immediate return. “Going thru this TDMI project won’t bring us immediate results, but will help us prepare for changing markets,” Szewczyk said. “The average company, including Bliley in the past, doesn’t focus on the market driven activity, they only look at the needs of their current customer-base.”

Before Bliley dedicated a lot of time and resources to selecting markets to go after, they engaged the resources of NWIRC and RTI to vet out the markets with greatest potential. The impact of the project is still imminent, but the TDMI process helped them save time and money in the long-run by not taking time away from employees with critical roles at the company and gave them a roadmap for the future. A key deliverable, provided to Bliley by NWIRC and RTI, was the feedback via interviews from actual contacts within the industries being researched. Szewczyk thought these companies and contacts will be valuable as they move forward with plans for the technology.

As the leader in high performance frequency control devices, Bliley Technologies’ tagline ‘Bliley Takes You Further’ was developed because “we don’t want to be thought of for just our product,” Szewczyk said. “We are more than a quartz crystal or an oscillator manufacturer. We are a solutions provider and advancing technology is part of our DNA.”
Cybersecurity Framework Remains a Hot Topic

Deloitte and Manufacturers Alliance for Productivity and Innovation (MAPI), conducted a study and recently published, *Cyber Risks in Advanced Manufacturing*, with the cited goal of helping companies “engage in a deeper dialog around core aspects of a cyber risk program, identify continuous improvement opportunities, and establish a road map for becoming more secure, vigilant, and resilient.” The conclusion in the report reflects that “although there is a tremendous amount of product and process innovation occurring in the manufacturing sector as digital and physical paradigms continue to evolve, there is also much variability among cyber risk approaches which leaves individual companies vulnerable to attack and loss of critical data.”

In 2015, manufacturing was the 2nd most targeted industry for cyber attacks. Nationally, the Manufacturing Extension Partnership (MEP) network is focused on proactively helping manufacturers with cybersecurity best practices. As an MEP center, NWIRC offers resources for reducing cyber-risks, from establishing policies and training employees to complying with government client requirements.

For companies in Northwest PA looking for additional information and guidance in developing their cybersecurity framework, the upcoming Cybersecurity Bootcamp will offer basic strategies to deploy. The program will also have a focus for companies who are contractors and subcontractors with the Department of Defense. For these manufacturers, the deadline is now looming for new cybersecurity requirements that will be reviewed during the program. The Cybersecurity Boot Camp is scheduled for March 28th in Erie. Along with NWIRC, the program is presented by Gannon SBDC and Northwest Commission PTAC. See more details at www.nwirc.org/events.

New IATF 16949 Internal Audit Course Offering

In October 2016, the International Automotive Task Force (IATF) published a revised automotive industry standard to replace ISO/TS 16949:2009. The ISO 9001 requirements are now published separately from the new IATF 16949:2016 requirements, however they remain the foundation for the new automotive standard. As of October 2017, audits will no longer be conducted for the old ISO/TS 16949 and all certifications to this standard will expire in September 2018.

NWIRC’s new IATF 16949 Internal Auditor 3-day course covers requirements of both standards, including the new IATF 16949 requirements for internal auditors regarding core tools and customer-specific requirements.

The first of several IATF 16949 training courses is planned for June 13-15, 2017 in St Marys. See details and register (and watch for future courses) at www.nwirc.org/events or call us to schedule an onsite training at (814) 898-6888.

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UPCOMING EVENTS

Failure Modes & Effects Analysis
March 15
Location: DuBois
A failure modes & effects analysis (FMEA) helps companies identify and manage risk, which is a critical aspect of the new ISO 9001: 2015 standard. Any company that is ISO registered should train employees on FMEAs. This course provides that training opportunity so you can add FMEA to your quality management toolbox.

Root Cause Analysis
March 28
Location: DuBois
Root Cause Analysis (RCA) is a methodology for finding and correcting the most important reasons for performance problems. Don’t just put a bandage on a problem... discover a disciplined approach to problem solving.

Developing and Applying Instrumentation and Control Documentation
March 29 and 30
Location: Erie
Do you need to design and develop control systems documentation? ISA (International Society of Automation) will instruct this two-day course beneficial for engineers, designers, software programmers, system integrators, and technicians.

Minitab Workshop
Starting April 5
Location: Erie
Expand your expertise with Minitab software by attending this hands-on workshop. Four half-day sessions will offer instruction and practice for performing various statistical analysis functions commonly used for quality improvement. Participants are encouraged to bring examples and problems from their current work environment.

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