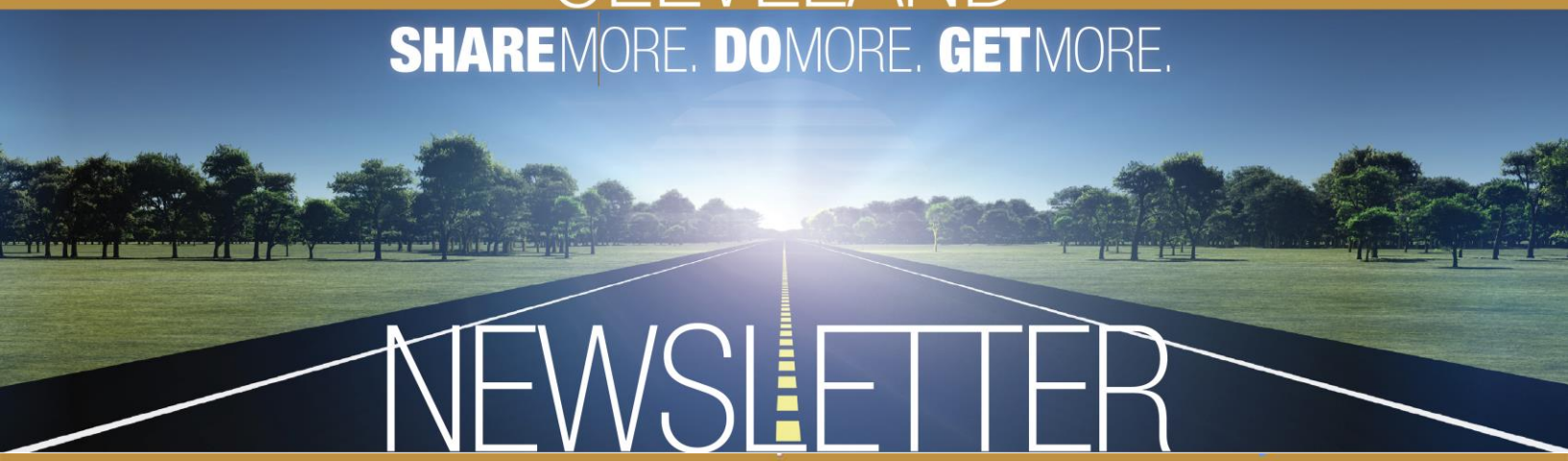
AME CONSORTIA CLEVELAND

SHAREMORE. DOMORE. GETMORE.



NEWSLETTER

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Akron Children's Hospital

What a day March 29th was.

Seeing a lean enterprise in action – and making a big difference in helping our children get well again – makes me proud to be a part of the lean community. The lean progress made throughout Akron Children's Hospital, as well as lean planning in the construction of their new building wing, is a real game changer. Simply put – it was a fantastic benchmark!

The feedback I got from this event was nothing less than outstanding. With record attendance, we had more than 32 people representing 11 consortia companies and several AME staff members. Anne Musitano, director of operational excellence, and Dana Stahleker, operational excellence coordinator, did a fantastic job of showing how lean can be implemented outside the borders of manufacturing. Their professionalism and willingness to share, exemplifies AME's core values of share, learn and grow.

More on this event in the pages to come. Great job to Anne and her staff! I look forward to a continued relationship with Akron Children's Hospital.

Rick

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Richard Wiltse
216 548 7153 or email
rwiltse@tremcoinc.com

GENERAL CONSORTIA NEWS

AME Consortia Executive Leadership Summit

In another first for AME and AME Consortia, our AME Cleveland Consortium will hold the initial ***AME Consortia Executive Leadership summit.*** The idea is to bring various senior executives and CI practitioners together to view best practices in lean manufacturing and lean enterprise. The topics will include mission-driven focus, people-centric leadership and enterprise excellence.

In the word's of George Saiz, AME president and CEO: "At AME, we have seen through our membership that where lean has found success over the years, it has primarily been in the operations areas. True enterprise-wide implementations are the exception rather than the rule. In order to see that change within industry, we need to bring executive leadership into the fold. To that end, AME is developing programming aimed at c-suite executives with plans to launch an annual executive leadership summit beginning in the spring of 2019."

At the time of this writing there are more than 38 people signed up. The event is being held at Goodyear and will include a tour of the race car facility to see how the above topics are being implemented. Hope to see you there on June 28!

Akron Children's Hospital

How many of us can actually state that our company has taken lean into account before it built a new addition to its facility? I know I cannot. On March 29, our group got to hear the story behind how Akron Children's Hospital created real life simulations using cardboard cutouts and other tools to create the perfect lean laboratory for performing PDCA simulations before any internal construction began. This resulted in a work environment where waste was eliminated before it ever actually appeared! The book " Lean Operations, Lean Design, Lean Construction – building a Lean Hospital Facility" was written to document this journey, so if you are planning on doing a building add on, I suggest you purchase this book first. Building or not – this book is a great read !

BENCHMARKS – Perry Nuclear Power Plant

Unfortunately, the Perry Nuclear Power Plant Benchmark had to be postponed. Our host (and my good friend) Jamie Platt had to go to the emergency room for a chronic back pain he was experiencing. This occurred the afternoon before the tour was to be conducted. My sincerest thanks to the participants for being so understanding. We will get this re-scheduled. Our best wishes to Jamie for a speedy recovery!

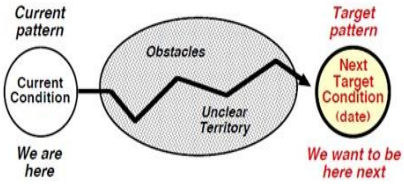
Industry 4.0 – the Internet of Things

As many of you recall, we had a roundtable session with Ned Hill of OSU last December on IoT. I received some great feedback from that event! That stated, I recently ran across an article authored by a past acquaintance of mine, Tim McLean. Tim is the managing director of Lean Consultants "TXM Lean Solutions". www.txm.com. I met Tim at the Jacksonville AME conference a few years back. Anyway, I thought you may enjoy the article. It is titled, "Does Industry 4.0 mean the end of Lean Manufacturing" and can be found on page 7.

SPECIAL INTEREST GROUPS

Toyota Kata

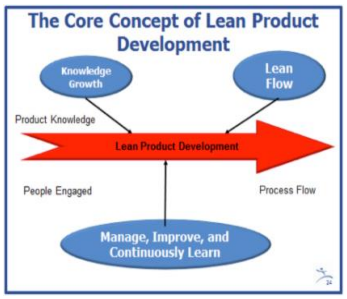
The Toyota Kata group met on April 17 with a brief tour of both Lincoln Electric and Tremco. Participants included representatives from Lincoln Electric, Tremco, Vitamix, Rockwell Automation and Davey Tree.



It was interesting to see the progress made at Lincoln Electric. Although we were warned that Kata was in it's infancy, the PDCA cycles we spotted told us another story. The tour was followed up with a roundtable discussion of give and take for what each company was experiencing in their Kata implementations.

At Tremco, Kata continues to make inroads on productivity as seen in output metrics and additional Kata implementations. The plan for the next year is to spread Kata to other manufacturing resources and also shoot for an enterprise Kata if possible. Our group includes Rockwell Automation, Tremco, Lincoln Electric, Davie Tree.

Lean Product Development SIG



I am attempting to get together a joint regional/consortia event to be held at a consortia member company which will include a tour and Norbert Majerus's "1500 products on time" workshop. I am hoping to have the event late summer/early fall. Please stay tuned.

The group includes Goodyear, Rockwell Automation, Steris, Graftech, Honda R&D and Kyocera-SGS Tool. Norbert Majerus is the team leader.

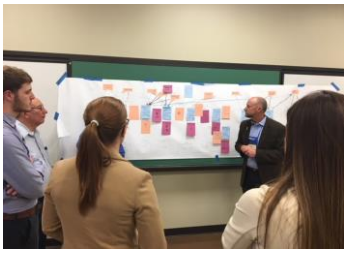
Senior Management Engagement SIG

The first Senior Management Engagement Special Interest Group met on May 4 at Rockwell Automation. The "keynote" speaker was Rockwell Automation's Eric Crump. Eric gave us a dynamite presentation on his key learnings through his dynamic manufacturing career. Eric showed us how interactions with people formed the basis of lean, and how it really makes the difference in true north lean implementation.

A second presentation, held by yours truly, focused on how the role of senior management in lean is not to identify waste and implement the hard / soft tools, but rather to assess the health of the lean system.

The participating consortia companies include SSP, Davey Tree, Rockwell Automation, Tremco and Goodyear.

Workshops



During the 2nd Quarter, the AME Cleveland Consortium offered up 3 workshops, including A3, Value Stream Mapping and Minitab ANOVA. Each of these workshops were fully attended. Upcoming workshops will include "People-centric leadership 101" and "1500 new products on time and on target." There are also several workshops in development, including lean management, facilitation and Toyota Kata. Tedd Cowling, instructor for the A3 workshop, wrote up a nice article on the A3 workshop at Davey tree. Check it out on the following page!

A3 workshop at The Davey Expert Tree Company

A3 Problem Solving in NE Ohio

Is this problem one that my Manager should resolve, or is this an opportunity to showcase my skill in problem solving for the benefit of my company? Who owns the problem and why is it important to the enterprise?

These were just a few of the issues covered in the recent A3 Problem Solving Workshop sponsored by the Cleveland AME Lean Consortia. Twenty eight people participated in the workshop taught by Tedd Cowling, Lean Consultant and Coach from Lean Rx, LLC.

Each participant selected a problem as the basis for constructing their own A3, as each of the elements were defined and expanded during the workshop to illustrate the mechanics and the critical thinking behind A3 methodology.

There are many different methods to attack problems, and many different approaches depending on the type of problem that is being addressed. "While scientists and engineers are typically taught scientific methodology in academia," said Mr Cowling, "it is atypical that students are taught problem solving as part of their collegiate curriculum." Learning how to be a problem solver early in your career will not only enhance future opportunities, but also increase the value that you bring to any organization.

The 8 hour workshop was hosted by Davey Tree, on their main campus in Kent, Ohio. Jason Brumbach, Lean Transformation Leader for Davey Tree, noted the impact of this training while observing fellow associate identify and explain some of the issues that arise within their functions, and how A3 methodology can become an essential tool for getting to the root cause of problems, rather than establishing work-around solutions. "The key to using a structured approach to solving a problem is to fully grasp the situation before making assumptions, or jumping to a solution. The benefit is not only the critical thinking that goes into solving a problem but through building skill within Davey culture to promote team collaboration and engagement. We want our associates to be empowered to solve problems when they see them."

Rick Wiltse, Facilitator for the Cleveland AME Lean Consortia, reflected on this training as a true form of engaging teams to approach important issues using creative thinking and an analytical process to communicate across all levels of the organization, essentially by taking a people-centric approach toward building a problem solving culture.

Workshop instructor and coach, Tedd Cowling, who has taught hundreds of engineers, scientists and business leaders, explained that "when discussing structured problem solving with business leaders, I first explain what it takes to become a learning organization, A basic premise of the learning organization is not to assign teams and tackle all sorts of problems, but to engage teams to approach important issues using problem solving methodology to tackle a few problems and establish sustainable solutions. When business leaders see the results of team accomplishments, they commonly realize that the true ROI cannot be measured in dollars but by developing a culture of critical thinkers and problem solvers that are capable of attacking larger and more complex issues when and where they arise. Empowerment of people in problem solving is one of the highest levels of engagement within any organization.

Feedback from participants was overwhelmingly positive, as one participant stated "My job is to find solutions to problems - this will help me to be sure that I am addressing the correct problem". Another participants commented that "this is definitely a methodology we can use to help transform our business". The impact of A3 problem solving to your organization can only be measured by the accomplishments and successes you observe as your teams build their skill and capability when using such a powerful tool.

AME Cleveland Lean Consortia: 2018 Schedule as of June 14th

Topic	January	February	March	April	May	June	July	August	September	October	November	December	REGIONAL
Board Meetings	Board Meeting						Board Meeting						Regional June 18th Lean Office Crown
AME Conference										AME Conf San Diego			Mititoyo
Benchmarks			Akron Childrens Hospital *March 29th*			Perry Nuclear Power Plant **May 31st June 1st**		Toyota in Kentucky		Honda R&D metrics and financials			Anchor Industries
Lean Supply Chain											Lean Supply Chain		Parker Hannifen
People centric Leadership									People Centric Leadership				Lean Healthcare August
A3				A3 workshop *April 5th*									Lean Safety August 15th and 16th
Lean Prod Development								1500 products a year on time and target					
Minitab	Minitab 18 *Jan 25th*			Minitab 18 *April 19th*				Minitab 18			Minitab 18		
Kanban Pull Systems													
Past workshops				Value Stream mapping *April 24th*			Lean Mang		Visual Management		Toyota Kata		
Roundtable Open Collaboration	Roundtable Shingo assessor panel *Jan 31st*				Roundtable: Senior Management panel *May 4th*	Roundtable: Senior Exec Summit at Goodyear *June 28th*			Roundtable SIG Report outs		Roundtable First Line Leadership	Front Line Leadership and the war on waste	
SIG Lean Enterprise									SIG Lean Enterprise				
SIG: Toyota Kata				SIG Toyota Kata *April 17th*				SIG Ohno studies			SIG Ohno studies		
SIG: Lean Prod develop					SIG Lean Product dev								
SIG: shingo	SIG Shingo *Jan 31st*												
SIG: Senior Mang Engage					SIG Senior Mang Engage *May 4th*			SIG Senior Mang Engage			SIG Senior Mang Engage		

"Does Industry 4.0 mean the end of Lean Manufacturing ?"

In manufacturing, we all love the "next big thing" and this question naturally implies that Lean is "the last big thing" and Industry 4.0 the next. So should you be parking your Lean initiatives and bringing in an Industry 4.0 expert to assess your readiness for the next wave of manufacturing?

What is Industry 4.0? Industry 4.0 is a term developed by German government to describe its high technology strategy for manufacturing. Essentially the German program promotes the idea of a "fourth industrial revolution". This is based on technologies such as advanced robotics, the "internet of things", big data analytics, 3D printing and advanced sensors. This idea has now been adopted by governments and experts around the world. It is being vigorously promoted by a growing army of consultants and experts.

So What is the Difference Between Industry 4.0 and Lean? Arguably, both Lean and Industry 4.0 are manufacturing philosophies or frameworks to design a manufacturing operation around. However they are very different. Lean is primarily about people and process. It is technologically agnostic, meaning that Lean can work in a low technology environment just as well as a high technology environment. Despite the rhetoric about "machines manufacturing machines" at the end of the day every business relies on people to design, program, operate and maintain their manufacturing processes.

Industry 4.0 can be seen as a philosophy of manufacturing where advanced technology is leveraged to develop integrated and highly adaptive manufacturing systems. Therefore it is about using 21st century technology to find solutions to manufacturing challenges.

Industry 4.0 is being presented as a "next wave" of manufacturing that manufacturers have to "get on board". I think this is quite misleading. In fact, if you are a prudent business leader and keep up to date with global advances in technology in your industry, then you are probably already up to date with "Industry 4.0" in your industry.

Do We Need Lean in an Industry 4.0 Environment? Advanced machines usually need to operate in a clean and organised environment. They need materials and information presented to them in an accurate, consistent and predictable ways. They need to be maintained well. When things go wrong they needs a process to find the root cause and solve problems. Therefore Lean is, in fact, a necessary part of a successful automated factory.

Further to that, when we automate, we usually focus on the steps that actually transform the materials in to finished products. In Lean we call these the value creating steps. As most of us know, most waste is located between processes. Therefore if we just focus on improving the process that creates value by automating it, we can actually miss the major improvement opportunity in our business. In some cases automating the value adding step can even make waste worse by increasing overproduction and work in progress between processes. Therefore, in an Industry 4.0 world, Lean and the value stream remains an essential tool to see the waste in our process.

Should You Get and Industry 4.0 Assessment? 3D printing is advancing rapidly and will transform many industries. In many ways it is a "Lean" process as it eliminates many process steps in the manufacturing of products.

The short answer is no. The way that new technology will appear and the benefits it will deliver are likely to vary enormously from industry to industry. The best response is to make sure that you are up to date with what is happening in your industry. Therefore, a much better investment is to jump on a plane and visit the biggest global trade shows and industry conferences in your industry. Build relationships with overseas manufacturers in your industry and connect with manufacturers in other industries through networking groups such as the Best Practice Network.

Much of the hard work on new technology is being done by the capital equipment manufacturers such as machine tool manufacturers. Increasingly these machines will have inbuilt diagnostics that connect to the internet and enable the machine to predict maintenance needs. The machines will become more adaptive (like autonomous cars) to their environment and the materials they are working with and they will become more flexible. Therefore build relationships with key equipment suppliers in your industry so you can stay up to date.

The Problems of Changing Technology When You Don't Change Mindsets. One of the first industries to be transformed by digital technology is the printing industry. The complete end to end printing process has been revolutionised in the past 20 years with advent of digital pre-press workflows and digital printing. However talk to some commercial printers and you will be quoted a lead time of weeks for supply of product. This is because the technology might have changed, but the mindset cases hasn't. The digital printer can efficiently set up and produce in seconds. However, the systems around the printer may not be able to deliver the artwork, the paper stock and the resources to manage this flexibility. In some cases printers still believe that large batch sizes are efficient pervades, even though digital printers require little or no set up and a batch size of one item is possible.

I see similar problems in other highly digitised industries such as CNC machining. I am sure that 3D printing will be equally hampered if old mindsets are not addressed with Lean Thinking.

The Tesla Experiment Perhaps the most famous experiment with "Industry 4.0" technologies (if not literally part of an Industry 4.0 program) is Tesla. I am personally a fan of Elon Musk and Tesla, purely for his vision and ambition. His innovation has had an impact on the whole automotive industry. However, as anyone who reads the business press would know, Tesla have some very serious problems.

Tesla have invested heavily in highly automated machinery in their assembly and battery manufacturing plants. They coined the term "machines making machines" to describe their process. They have also made much of being "post-Lean", even though their assembly plant is the former GM/Toyota joint venture, NUMMI. That plant was perhaps the most famous Lean transformation in the world. Tesla's current problem is that they cannot get anywhere near the production rate they need for their Model 3 product. As a result they are making heavy losses and there are concerns that they may run out of cash. The irony is that for all the technology and investment, this situation is being caused by very human problems – poor supplier integration, getting the automation to work, design problems and quality issues. All the things that our Lean system is designed to address.

I hope Tesla survives, but in many ways they should provide pause to those who argue that all the answers to manufacturing problems can come from technology and that Lean is a thing of the past.

So What Should You do about Industry 4.0? I would suggest that you need to do nothing about industry 4.0 specifically. Instead in this rapidly changing world you need to stay closer than ever to your customers and focus on their needs. Stay up to date with technology in your industry as I have suggested, but also monitor your competitors and watch out for changes in the overall value chain, not just your part of it. It is especially important to look downstream in your value chain towards the end consumer. For example, suppliers to the advanced machine tool industry have been profoundly influenced by changes in the smart phone and computer markets, as there are many precision machined parts in smart phones and computers. Likewise, the pace of change towards electric vehicles will have profound implications for anyone involved in any stage of the automotive value chain. Be prepared to look beyond your own industry and study other industries to see if changes in those industries might provide a pointer for your own.

If you are improving your process, look to reduce lead time and increase agility. Make sure you don't just focus on the production process itself, but also consider speeding up processes like customer service, application engineering and sourcing. The workflows at the front end of the business as well as aftermarket support are likely to become as important (if not more important) sources of value than the production of the product itself. Bring your supply chain closer to your business. The extended supply chains of the globalisation era have locked in lead times and hidden costs that kill agility and often end up adding cost. If you invest, focus on investments that improve your service and can deliver a customer benefit. Heavy investment in automation to reduce labour, needs to be very carefully considered to ensure that the returns will actually be achieved, that flexibility and agility is not being lost and that the process you are automating actually has a future. Finally, and of course, the emphasis on customer value and relentless focus on reducing lead time means that Lean Thinking needs to be a key part of your strategy.

As for that "Industry 4.0 Readiness Assessment"? I would take a raincheck on that one!