

Target

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A winning formula

Autoliv's lean journey to becoming
the leader in enterprise excellence

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for manufacturing **careers**

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A winning formula

Autoliv's lean journey to becoming the leader in enterprise excellence. **SUSAN FOTOVICH MCCABE**

INDUSTRY INSIGHT

Jerry M. Wright, P.E., AME Chairman



United we stand (and deliver); divided we may fail

If you have customers, be they internal or external to the organization, and if you have a process to follow, you can apply lean.

One of the most common things I hear from lean champions and operations folks is that their organizations feel that lean is just for manufacturing or operations. According to what they tell me and what I hear myself, lean “does really not apply” to us in sales, information technology, marketing or product development. That is just denial or ignorance, plain and simple.

The fact is that if you have customers, be they internal or external to the organization, and if you have a process to follow, you can apply lean. I have had the fortune to work at several great lean-thinking organizations where there were no islands, no silos. Everyone and every team applied lean thinking to their work.

We worked on lean product development, lean for the IT help desk, lean product launch, lean applied to legal document retention and yes, even lean and Kaizen applied to sales. It has been an amazing experience to see the whole organization embrace customer focus and reduction of those steps or things that did not provide value in the minds of our customers.

So, knowing that it can work everywhere, what does it take to break the paradigm of “that doesn’t apply to us?” There are a couple of paths you can try. It is ideal to have the support of a company’s executives or owners. At AME, we can connect your CEO, COO, CFO or CIO and others to other lean-thinking executives that can give credence to your aim of enterprise-wide excellence.

Barring that level of support or commitment at the leadership level, another approach is to invite potential converts in departments such as accounting and IT to be “outsiders” on an operations lean or Kaizen event. Let them experience the process improvement without the risk of ownership or commitment in their own area. You may need to do this a number of times, but eventually, there is a good chance that they can see how their own area’s problems might be resolved with a similar lean or Kaizen methodology.

Using this approach, I have seen growing engagement with and commitment to lean thinking in all of the nontraditional lean areas of a business. Some great examples were: 1) the lean sales call, with full 5S car trunk, standard work, etc.; 2) setup reduction of accounting close from six days to 1.5 days for a \$1+ billion organization across eight disparate ERP accounting platforms; 3) IT provisioning taken from weeks to immediate replenishment via kanban; and 4) rapid product development cycles with full levels of A3 learning cycles that cut project lead times in half — just to name a few.

Those brilliant organizations that can unite their lean mindset across the enterprise stand to outpace their competition at a much greater rate than their less enlightened counterparts. Not involving the whole enterprise risks failure at some level.

Beat that risk by getting connected further within AME. Seek out others in AME who have had similar challenges and may have other options for you to try. You’ll be glad that you did! ☺

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Speaking the same language and using the same approach makes issues and/or improvements easier to understand, and bridges the functional barriers that may exist within your company.

Establish common languages

I was working on a presentation last week that included work at a previous company in regards to the tools of lean — specifically, the use of the A3 problem-solving method. As I reflected, I remembered how important it is to establish common languages within our companies as we progress along in our enterprise excellence journeys.

Thinking back to the early days of my career, I had taken a materials management position with a division of a large orthopedic company. Shortly after joining, I was drafted into the additional role of chairman of the company quality improvement process, which was based on the teachings of Phil Crosby. Crosby had a best-selling book out at the time titled “Quality Is Free” and had opened up the Quality Institute in Florida for corporate training. He shared an overriding principle of “Do it right the first time” (DIRT-FIT) and had summarized quality into four primary principles. The reason they drafted me into this position was that my previous company had also embraced Crosby’s teaching and had set up an internally run mirror to Crosby’s Quality Institute. I had been through both the management and instructor training there and was probably further along than my new counterparts in Crosby’s process.

I recall an introductory meeting with the vice president of quality for my new employer and he shared his concerns with following

Crosby’s principles, as he much preferred those of Deming. I told him that they both had very strong methodologies, but the huge win for our company would be to get all 350 employees bought into the same process, speaking the same language and going in the same direction.

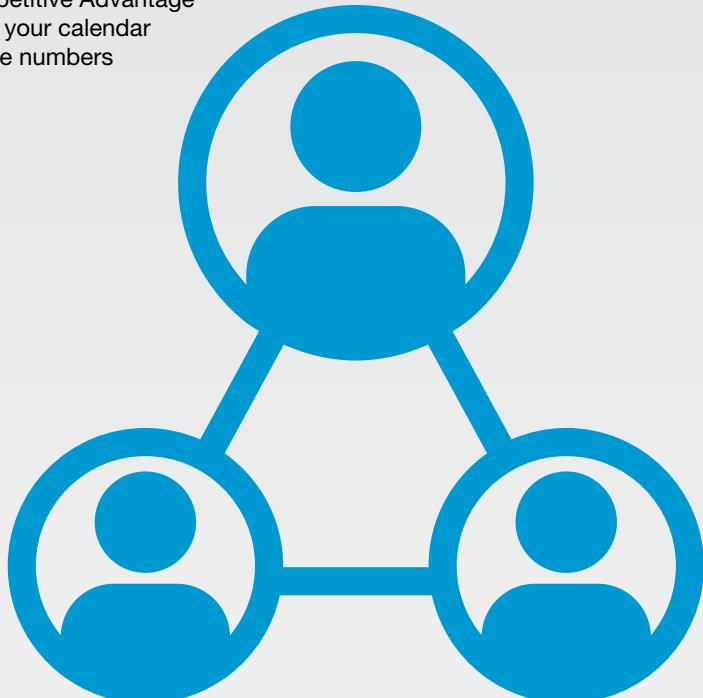
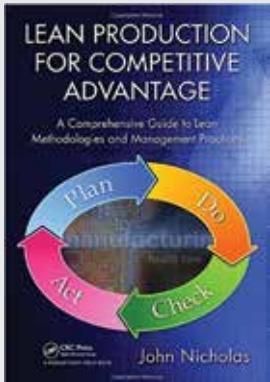
Fast forward to my last employer, where we made the decision to standardize on one problem-solving tool: the A3. It wasn’t that the A3 method was superior to all other problem-solving tools, or that it was an all-encompassing tool, but that we could standardize our approach and speak a common language and, again, be pointed in the same direction. It took three years to build the A3 mindset into our company DNA, but in the end, it was worth it. It was exciting to be in a meeting and get stuck on an issue and have someone pop up and say, “What problem are we trying to solve?” It was great to have the controller, product managers, general managers encounter a problem and say, “We need to do an A3 on this.”

I encourage you to find and develop those common language opportunities within your companies on your journey to enterprise excellence. Speaking the same language and using the same approach makes issues and/or improvements easier to understand, and bridges the functional barriers that may exist within your company. It is a powerful way for your team to bond together when tackling whatever issue they are facing. ☀

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Lean Production for Competitive Advantage

Specs

Lean Production for Competitive Advantage by John Nicholas, Ph.D., (Productivity Press/CRC, 2011, Boca Raton, Florida)

Synopsis

It's puzzling: I — and, it seems, much of the lean community — have overlooked this comprehensive book on lean's essence, rationale and methodologies. John Nicholas, operations-management professor, Loyola University Chicago, organized this adroitly written book into three sections and 16 chapters. In Chapter 1, "Race Without a Finish Line," he presents lean as a force for competitiveness — a point of view often missing in lean lore — while reviewing lean's evolution, including its vibrant 1980s era under the just-in-time (JIT) banner.

By way of further introduction, a Chapter 3 section on "The Meaning of Lean Production" points to lean's commitments to time and quality, and refers to misunderstandings about social impacts of lean. Chapter 4, devoted to "Customer-Focused Quality," includes all the TQ basics, with special attention to the essential involvement and ownership of quality by the workforce.

As to lean itself, while many books and articles have been veering away from core methodologies, this book does not. Chapters 5 through 12 bore in on lean's essentials: Small lots. Set-up time reduction. Equipment maintenance and improvement. Pull systems. Focused factories and group technology. Work cells. Standard operations. Quality-at-the-source/mistake-proofing. Although each is presented thoroughly, with plentiful examples, what catches the eye are special insights.

For example, a Chapter 6 section, "Abolish the Setup," states that instead of a single, costly machine for producing many kinds of parts, lean advises several less expensive machines, each dedicated to a single part, or similar parts, so that "changeover between parts is eliminated or is reduced to trivial steps." The topic continues in Chapter 10 under "Machine Acquisition," which notes tendencies toward high-speed, multipurpose machines, the high costs of which mean that fewer of them can be acquired, and so "jobs have to wait longer." These discussions focus on a



contemporary topic, concurrent production, which calls for the use of multiple simple machines that can simultaneously produce many products.

The book ends with a four-chapter summary section that uniquely extols the virtues of "Simplified Production Planning and Control Systems": Uniform flow and mixed-model scheduling. Synchronizing and balancing the process. Planning and control in pull production. And lean supply chains. Besides treating the nuts and bolts of these topics, Nicholas includes broadened viewpoints. For example, he advises that, for the sake of practicality and feasibility, leveling the schedule needs to be a "Cooperative Effort," carried out jointly among people from sales, marketing, engineering, production and finance.

The book's preface states that it was written for practicing managers and engineers, as well as for a second-level course in production and operations management. For classroom purposes,

there are end-of-chapter questions, plus, where applicable, problems.

Best advice

If you or your colleagues are trying to sort out what's really important about lean, study the eight chapters in Section II, Elements of Lean. They make up eight lean methodologies that act on and change the processes — as opposed to methods that merely analyze their potential for lean interventions.

Worth the read?

If you're from the industry, you'll welcome this book as a superior authority on what to do to get lean on track — and keep it there. If you're a professor, you'll find, finally, a book on lean management that can replace the cut-and-paste course materials that you've had to use in the past. ☀

Richard J. Schonberger is author of seven lean/TQ-oriented books, including his most recent, "Best Practices in lean Six Sigma Process Improvement" (Wiley, 2008).



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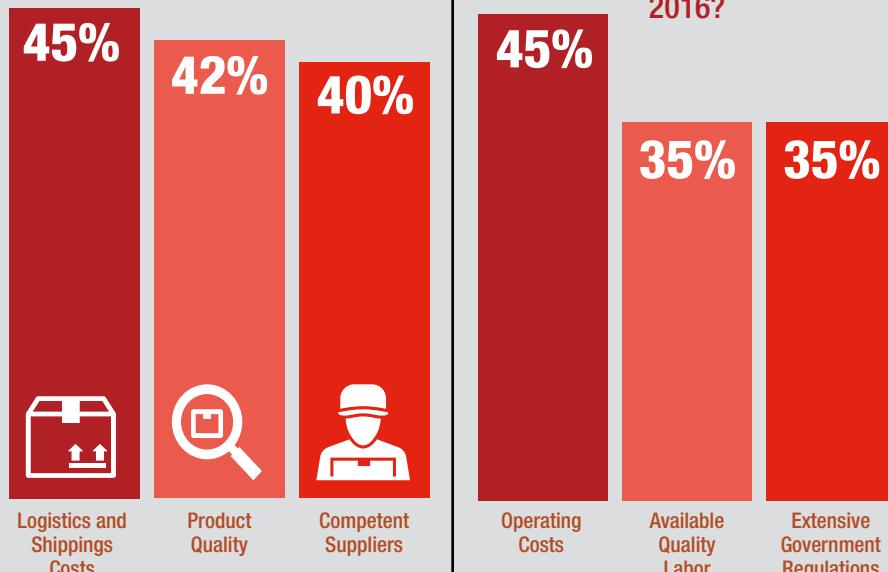
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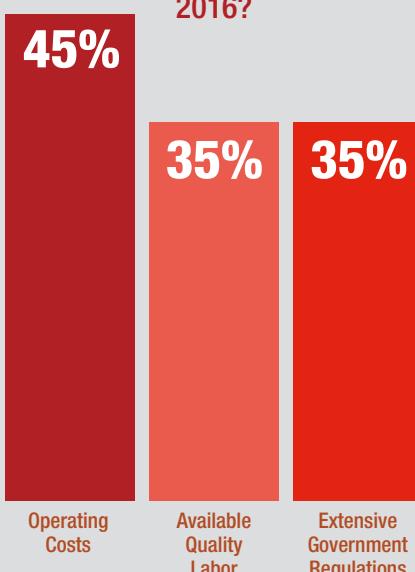
BY THE NUMBERS: COMPETITIVE ADVANTAGE

TOP 3

Most Important Factors threatening supply chain strategies



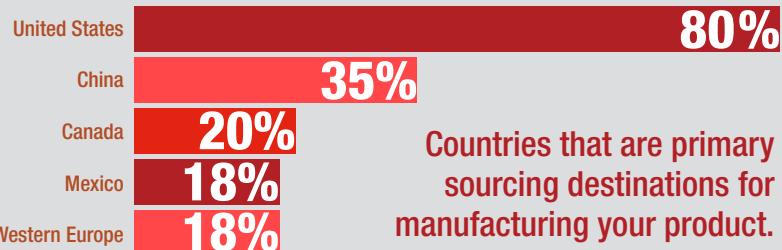
Which issues have the **LARGEST** impact on your economics and the competitive future of manufacturing in your region in 2016?



Did competition in your industry **INCREASE** in 2015?



Conclusion: Manufacturers are looking to increase their competitive advantage by investing in new technology and the workforce.



Countries that are primary sourcing destinations for manufacturing your product.

SOURCE: 2016 MFGWATCH MANUFACTURING REPORT ON CONTRACT MANUFACTURERS
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A WINNING FORMULA

Autoliv's lean journey to becoming the leader in enterprise excellence.

BY SUSAN FOTOVICH MCCABE



If ever there was a time and a place to leverage the power of lean, it's inside the facilities of Autoliv, the world's largest air bag manufacturer. From its global headquarters in Stockholm, Sweden, to its Ogden, Utah, facility, the company lives its motto, "Save more lives," each and every day, saving more than 30,000 lives and preventing 10 times as many severe injuries annually with its vehicle safety systems, including air bags, seat belts and steering wheels, as well as active safety solutions.

The business of saving lives, particularly within the automotive industry, has drawn intense scrutiny of late. The last few years have marked record-breaking automotive recalls, most notably an unprecedented air bag recall linked to faulty inflators manufactured by Takata. The recall underscores the

importance of the relationship between quality manufacturing practices and consumer safety.

"We ship approximately 700,000 air bags each week from the Ogden facility. We save lives, so we must do everything 100 percent correct every time," said Autoliv Lean Consulting and Autoliv Production System (APS) Manager Marie Turner.

In an unexpected move, several automotive manufacturers have asked Autoliv to supply replacement air bag inflators to their competitors' recalled vehicles — a testament to the company's reputation for quality. Over the next four years, the facility will grow by at least 9.4 million air bags. Yet, long before the news of defective air bags, Autoliv was honing its processes for a lean manufacturing approach that positively impacted its product safety, quality and efficiency.

Turner recently illustrated the importance of its work while hosting attendees of the 2016 AME Southwest Region lean manufacturing workshop at its Ogden facility in April.

"It takes 100 milliseconds to blink. It takes 20-30 milliseconds to deploy a car's curtain air bag and 40-50 milliseconds to deploy the front air bag. Autoliv's work, its success and ability to save lives must be precise," Turner said.

The publicly owned company currently has a 40 percent share of the air bag market. Autoliv Ogden Airbag had 20 production cells in 1995 prior to the start of its lean transformation. Today, with annual sales inching just past \$1 billion, it has 135 production cells and is making room for an additional 20-22 by the end of 2017.



Suggestion boards keep the lines of communication open between employees and management.

"Bottom line is that we are currently a \$1 billion plant and we will easily go to \$1.5 billion after the line expansion," said Plant Manager Brian Hyde.

The company's first quarter 2016 net sales of \$2.4 billion is an 11.8 percent increase over the same period in 2015. Sales of air bag products first quarter 2016 increased by 12.2 percent from the prior year.

"Our lean success didn't happen overnight. We had pockets of success in the 1990s, but today, lean has allowed us to be less reactive and more proactive," Turner said.

On solid ground

With 66,000 associates spread across 80 facilities in 27 countries, there's no room for error. The company receives daily orders from 90 percent of its customers, and a single manufacturing sort for a customer error may cost the company as much as \$60,000.

As such, the company built the foundation for its lean model by studying the

“We save lives, so we must do everything 100 percent correct every time.”

MARIE TURNER
AUTOLIV LEAN CONSULTING AND APS MANAGER

industry playbook — the Toyota Production System (TPS). In fact, between 1998 and 2001, Toyota sent Japanese production specialist Takashi Harada to work with Autoliv. That experience taught those who worked directly with Harada even more than Toyota's recipe for lean.

Autoliv APS Coordinator Jim Bickerstaff recounted the time when Harada convinced him to try running his production cell using one-piece flow. Bickerstaff did not believe that one-piece flow was the most efficient way to run his cell, but agreed to try it for one week. His production cell had one machine that was notorious for breaking down on a daily basis when running one-piece flow, and thus he did not have the normal buildup of work in process after that station. This caused the entire cell to go down daily and caused the cell to have to work the weekend for the first time.

"The following morning, I told Mr. Harada that one-piece flow did not work because it caused me to work overtime," Bickerstaff said. "Mr. Harada replied that 'one-piece flow is the reason that your problem would never get fixed.' His point was that if we are going to get better, we need to expose our problems and fix them."

Hyde echoed Bickerstaff's sentiments. "Harada never once told me what to do. But I was always busy because he was asking good questions. The solution I came up with was better than someone telling me what to do," he said.

Tailoring Toyota's lessons to its own needs, the company calls its lean approach the Autoliv Production System (APS), built on a foundation of five elements: teamwork, 5S, standards, muda (waste) elimination and total productive maintenance (TPM). Its foundation is

supported by three lean principles: just-in-time (JIT), quality first and employee involvement. The company refers to a plant as an autonomous manufacturing organization (AMO).

The Utah company — the only air bag manufacturer still operating in the U.S. — has implemented the principles of its APS model in all its AMOs, and has been recognized for its success. Autoliv has earned supplier awards from all the major vehicle manufacturers, as well as the coveted Shingo Prize for Excellence in Manufacturing at seven of its 12 manufacturing facilities in the U.S. and Mexico. Two of the seven facilities recertified in 2008.

A well-choreographed production

Inside the Ogden AMO, the sights and sounds of a successful lean practice are everywhere. Associates move about the facility with ease and precision, carrying out standard, repetitive work and changing jobs every 24 minutes for ergonomic purposes against the motorized hum of tugs moving inventory from one production cell to another at the same intervals.

According to Turner, a visual management system that contributes to that precision is key to the APS. Visual management tools fill each facility, including a swiveling, blue cube for each production cell, loaded with laminated and acrylic-covered charts and graphs with information that tracks the health of the cell at a glance and in detail, including cell goals, weekly communication sheets, job openings and even fun employee social opportunities, like the company's popular egg hunt. Likewise, huge, color-coded monitors strategically hang above the floor to highlight abnormalities (something associates at all levels are trained to spot quickly), and mural-like images cling to the walls as APS reminders and

why it is important.

Virtually any process can be visually controlled, she said, whether it's cyclical or performed less frequently, including visuals for 5S and administrative tasks.

"Visual controls raise the level of accountability for all involved. At the same time, visuals push responsibility closer to those who actually do the work," Turner said. "The board gives the operator the information to be responsible for the tasks, and visible accountability for completing them. That's quite different from giving the same information to an auditor, thus making him or her responsible for it."

A winning formula

From the outset, the company created a culture of continuous improvement by creating the expectation, teaching all teams the principles of lean (APS), aligning organizational goals through policy deployment, regularly sharing company performance, encouraging suggestions, processing and implementing those suggestions quickly, following a visual management system and recognizing that all leaders are teachers.

"We constantly raise skillability by teaching everyone the principles of lean. That leads to permanently resolving process issues. When you teach, employees start questioning their processes more, do more problem solving and come up with more good ideas. We want everyone here to own his or her process. No one knows it better than the associates. This has been critical to our success," Turner said.

That success is apparent in a number of performance metrics. Tracking safety, quality, cost delivery and morale, the company has a 100 percent on-time delivery rate. Similarly, it has reduced its labor minutes per produced unit (LMPU) — the mother of all metrics — approximately 6 percent every year over the last five-year period, outpacing its target of at least 5 percent annually.



Autoliv's visual management system includes items such as these swiveling, blue cubes highlighting important employee information.

Because the company's associates understand the importance of their work on consumer safety, they are trained to quickly and visually track anomalies. In return, the company verifies quality by leveraging Poka-Yokes (the Japanese term for error proofing) through cell line inspections, sensors and cameras.

Autoliv created five checkpoints to meet its high standards for quality and safety, including project planning, concept definition, product and process development, product and process validation and product launch.

Typically, it takes the Ogden manufacturer 18 months to launch a new product from start to finish, and allow for the time required to test and meet environmental standards. Each project uses an average of three to four machines, so reusing equipment gives way to considerable savings. To that end, Autoliv developed an equipment reuse database (ERD) to

look at what equipment the company can potentially reuse with a new project. It's become a valuable tool in bidding new projects because certain tooling cannot be reused, but control systems and ergo lifts can. It also helps forecast cell capacity. For example, one cell might only be used 40 percent of the time, so that would free it up to handle production of a new product. The ERD saves the company more than \$1 million annually.

Sharing lessons

The shift to lean manufacturing has been an outstanding success for Autoliv, so it's no surprise other companies are eager to learn the secret to that success. As a result, the company added a lean consulting division with a fee-based menu of consulting services to share its proven lean approach with others.

According to Turner, creating a sustainable lean transformation requires more



Nearly 700,000 air bags are shipped each week from Autoliv's Ogden facility.

than just using selected tools from the lean toolbox. It requires a complete management system makeover. The company provides lean tours, as well as on-site coaching to other companies. Turner said it's a powerful way to introduce these tools to employers of all types and sizes. The company addresses a broad spectrum of topics including lean management, worksite management, continuous improvement and simulated training.

Patricia Wardwell, director of continuous improvement Americas for Watts Water Technologies in Boston, attended the AME Southwest Region tour to learn the secrets to Autoliv's success.

"For many years, I had heard about its lean success and seen several presentations made by the company at various conferences," Wardwell said. "I wanted to go to their gemba to see for myself how it has implemented lean philosophies and methods, and how it has changed its culture."

In her role as a continuous improvement leader, Wardwell said it was a "critical next step" for her organization to "move to a more holistic approach to lean." Specifically, Wardwell was interested in strategies for driving improved behavior, standardized work, daily and visual man-

agement and problem solving.

"Seeing their methods will help me validate and improve some of the daily management work we are doing. Several of the presenters made it very clear that the boards used in their visual management system are important communication devices, getting everything out in the open, and surfacing potential problems very quickly,"

Wardwell said. "We have a tendency to rely on information stored on computers, and don't always share important issues or surface potential problems within our teams. I got many new ideas on how to make work more visual and how to manage visually from this visit."

Employee engagement

Autoliv is the largest manufacturing employer in Utah. Working at the plant is hard work, according to Human Resources Representative Hyrum Facer, but there's a certain staying power in return for how well employees are valued.

"Most of the time, when people leave Autoliv, the grass isn't necessarily greener on the other side," Facer said. "When you have great people working together in a safety environment, it's a unique kind of bond."

Like most companies making the lean transformation, there was some resistance early in the journey. But standardizing the work and a steadfast discipline to those standards helped ease the transition.

"It's not me pushing lean, it's them (the employees) pulling it," Hyde said. "We also realized early on that if we could implement our production associates'

ideas, we should just do it. We want everyone here to own his or her process. No one knows it better than our associates."

In fact, associates are expected and encouraged to submit three kaizens per month. Generally, Turner said if an employee submits a kaizen, it's a good idea, and if it's under \$1,000, management will likely do it. If it's more involved, it will require more consideration. While it could be rejected, Turner said that less than 1 percent of the kaizens are rejected.

Initial job training includes watching a video of testimonials from accident survivors whose lives were spared by air bags. It helps them understand that Autoliv isn't just an assembly plant, Bickerstaff said.

"We get one opportunity to save your life," Bickerstaff said. "That's why it's important that when we fold an airbag, we have a standard in place to get it right."

Incentives also help. The company keeps meticulous records on defects. Too much scrap signals an issue with either the machine or employee training. Conversely, the company is disciplined about its rules. For example, if an employee doesn't return from a break on time or doesn't do his or her required stretching exercises prior to the start of a pitch (or shift), it negatively impacts the line's ability to meet its goals, and prevents the entire team from earning three extra hours of goal-related PTO each month.

Ultimately, Turner said, the APS is not a means toward earning PTO. It's a means to keep consumers safe.

"Every four to five years, there's a new car on the road. We have to put a new bid on that business, while continuing to excel at quality and safety," Turner said. "Those aren't options, they're expectations. Drivers take that five-star rating seriously," Turner said. ☀

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Crown Equipment's continuous investment in people, programs and equipment to develop talent

BY LEA TONKIN



An FC Series 4-wheel sit-down electric counterbalance forklift.

When new associates join fellow team members as machinists or welders at Crown Equipment Corporation facilities, they're well-equipped for the work at hand. The New Bremen, Ohio-based manufacturer of forklift and material-handling equipment ensures that it meets customers' expectations for innovative, safe and efficient lift trucks through employees doing great work, starting day one on the job.

The company developed a new manufacturing training center in Fort Loramie (near New Bremen) to consolidate company-wide programs that provide skills and other training to new and existing employees. It's one of the ways

Crown invests in people, programs and equipment to attract, develop and engage talented people. Crown's track record for bringing capable employees on board – and then retaining them – is a key indicator of its training and development programs. There's no sense of relaxing its pursuit of even better approaches, however. Plans for additional programs and improvements continually bubble up, as markets change and employees suggest timely adjustments.

Preparing employees for current, future roles

"We looked at what we believe will happen in the future," said Dave Tumbusch, director of manufacturing. "We're not that different from other organizations that, over time, will have a number of employees with lengthy, extensive knowledge of our products and processes will retire. We needed to ask, as we bring in new people, how to go about developing the pool of skills needed when those skills are no longer readily available.

"Another part of the challenge is that we have employees who aspire to grow and develop in their careers with the company," said Tumbusch. "How do we prepare them for those new positions, as they become ready – and how do we develop employees to fill their former positions?"

Crown's dedicated training center in Fort Loramie reflects the company's level of commitment to meet these challenges. "At this center, we can actually show new employees the tools they will need on the job and help them come away with needed skills," Tumbusch said. "When we looked at our manufacturing personnel, we identified some key areas where we needed to supplement skills that may have been more readily found in the past than in our incoming employees, such as welding and machining. We evaluated the skills employees needed to master their jobs in our manufacturing operation, such as blueprint reading, dimensioning and tolerances. We recog-

nized that, in order to have employees with those sets of skills, we would have to build a foundation."

Culling feedback from manufacturing area supervisory staff as well as other functional areas such as the manufacturing engineering group, the company envisioned the new training center in Fort Loramie as an essential complement to existing training/development programs throughout the organization. Crown employees in all functional areas participate in a host of available classroom and training center training programs covering everything from safety and lean basics to soft skills such as leadership, team-building and interpersonal skills, as well as facilitation of value stream mapping (VSM) and kaizen (improvement) events.

Training supports vertical integration

"One of the things that is unique about Crown is that we are vertically integrated. We make parts for our lift trucks, and we also own retail outlets," said Doug Hall, training manager. "In this organization, we own the responsibility to train people to build, design, sell and service our equipment and do everything else that goes along with it. We have to be consistent, with collaboration among engineering, manufacturing and our retail network. The leadership at Crown has never shied away from investing in training."

Crown has coined and trademarked the term Demonstrated Performance® to describe its philosophy regarding its training programs. "Since many employees are hands-on learners, they're more likely to retain information learned through first-hand experience than material presented in a lecture. We feel our programs go above and beyond classroom training," said Hall. Crown leverages these best practices globally across 18 manufacturing plants.



A WAV Series work-assist vehicle.

Employees – from plant associates to administrative and leadership staff – receive lean training when they come onboard. Called white belt training, it's carried over from some of the company's Six Sigma training programs. "It's our way of offering Lean 101 to all new employees," said Tumbusch. "We provide a common, basic shared understanding of the language, including 5S, the eight wastes and problem solving. We also share an exercise that demonstrates the difference between a traditional batch process and one in which waste has been removed – how to lean out a process."

Quick-start program + talent development

White belt training provided at the Fort Loramie center is an element of

the company's "quick start" approach adopted in January this year, according to Stephanie Kovach, manufacturing training supervisor. Newly-hired employees participate in classroom sessions on Crown's culture, safety and lean manufacturing. Every two weeks, another five-to-ten-day round of training starts for new employees. During group and individual training, participants learn basics such as tolerancing, blueprint reading, how to use measuring tools (calipers, micrometers, etc.) and the types of work they will do on the production floor. Computer modules (videos) as well as hands-on training provide instruction. Trainers are on hand to answer questions and offer guidance as needed.

As trainees move through self-paced training modules at Fort Loramie, they are certified for specific jobs as welders

or machinists. They also practice on actual equipment at the training facility. For example, they can learn how to build a lathe or other equipment they'll use at their intended workplace.

"After they go through the quick start program, they go to the job site, where a trainer works with them," Kovach said. "They can come back for refresher training if they haven't worked on a particular machine before or if they transfer to another job within the company. We work closely with the supervisors for recommended additional training."

The quick-start program enhances Crown's onboarding process, Kovach believes. "We're laying a foundation, for people to make a career with the company," she said. "A wonderful thing about the company is that it promotes from within." Every Crown employee goes through an onboarding program, working with mentors and supervisors," added Dave Tumbusch.

Employees also have specific development programs. "People are treated as individuals; each person grows in a different way," Tumbusch said. Each manufacturing professional participates in an annual talent development process, working with a supervisor to evaluate current performance and options for future development and contribution to the company's progress.

"A great place to work"

Cody Wilson, a machinist at Crown's Celina, OH manufacturing facility, said he was attracted to the company after graduating from a vocational school and working in machining at other companies. He now works on CNC (computer numerically controlled) mills, making various parts for forklifts.

The quick start program at the Fort Loramie training center provided useful information about safety, according to Wilson. "People explain it to you, although you're not pressured," he said. "In a few weeks, you get used to it."



Instructor Rich Berning (center, in plaid shirt) works with Crown employee Jessica Hawkins (front, welder) on the Vertex weld simulator. Hands-on experiences are important in the Crown training process. In back, left to right: Dan Wilker, Megan Sudduth, Nikkita Brown, Alaina Frilling, Brian Walker and Austin Ricker.



Crown employee Kyle Mort works on a CNC mill simulator with instructor Don Mescher (far right) at the company's Fort Loramie training center. Also shown are Crown employees (left to right) Megan Sudduth, Dan Wilker, Derek Tussing, Alaina Frilling and Austin Ricker.

Tips included workplace housekeeping and strategies to avoid area hazards, for example.

When Wilson started on the job in January, production people at the work site also discussed safety and other basics with him. "It's going great. The training was a good thing. It gives you a jump start," Wilson said. He added that he can call on others on the job for any needed information, and he can suggest ideas for improvements. "I think of it as a steppingstone to something else – maybe working my way up in engineering, or training!" he said.

Opportunities for training and development at Crown enable the company to draw talented applicants, commented Kovach. "There is a stereotype that manufacturing is a dark, stuffy place," she said. "We are fortunate that we have bright, modern facilities and equipment that people see on their first day with the company. Through Manufacturing Day and other collaborative programs with area educators, we bring in high school

students to see the design process and to work on virtual welders and other equipment. We are proactive, letting people know that this is a great place to work, and that there are many opportunities to do various types of work."

Informal and on-the-job mentoring/training

Making a successful transition from trainee to effective worksite performance involves much more than initial training. Tumbusch noted that formal and informal mentoring by supervisors and fellow associates help to nurture crucial skills and competencies. One of those areas is safety," he said. "When a new person comes on board, they are paired with a safety mentor for 30 to 45 days.

They're encouraged to ask the mentor questions, and the mentor will offer demonstrations and explanations about the environment the new associate will work in."

"Supervisors also play a key role in mentoring/training new employees," added Doug Hall. "All of our managers and leaders attend the same safety classes as production people, and they are also responsible to make sure employees take needed courses."

Building engagement and understanding

Participating in kaizen events builds engagement, as employees also deepen their understanding about effective lean

“In this organization, we own the responsibility to train people to build, design, sell and service our equipment and do everything else that goes along with it.”

DOUG HALL
TRAINING MANAGER



tools and teaming. "When we have kaizen events, employees on the team are from various company departments – facility maintenance, factory, engineering, etc.," said Tumbusch. As kaizen team members work together to craft problem solutions, they share responsibility for identifying issues, evaluating possible solutions and selecting strategies for problem resolution. At the end of the event, the team presents its findings and recommendations to leadership (Tumbusch and others) – a great way to recognize their improvement contribution.

For each kaizen event, the team fills out an A3 – basically, a one-page document listing the team charter and goals, the team members, their problem-solving steps, plus results of those improvements and related learnings. "Before and after" pictures clarify their project's impact. The A3s go into a searchable database.

"We have a specific training program for certifying subject matter experts on lean tools," said Tumbusch. "It's offered for

employees who volunteer to lead events." During the training process, the trainee is mentored by a corporate lean expert, who determines and ultimately certifies the individual once the trainee completes the requirements.

Measures of success

Progressively upgrading employees' capabilities and expertise for making lean improvements enables Crown's drive for world-class performance. Eliminating waste in all areas of the organization helps to reduce cycle time and improve inventory turns, for example.

The company's emphasis on continuous improvement and ongoing training/development helps employees to prepare for other opportunities at Crown, according to Hall. "Employees have opportunities to take on new jobs, when they are provided a broad spectrum of skills training," he said. Among the company's planned program additions: Assembly certification training is slated to start in 2017. Auto-

mation training and other programs are possibilities on the horizon.

"A metric we use across the board is time to competence – how long it takes from the day you hire someone until they become fully or exceptionally competent," Hall continued. This approach, as an element of the company's ongoing development process for each employee, encourages an improvement mindset among all employees – whether they are in sales or a machinist. They're open to process and other changes that decrease errors and boost quality.

Many employees at Crown have long tenure (20 to 30 years) with the organization. "We own the responsibility to train new and experienced employees for future jobs," said Hall. "Our yearly talent reviews and other feedback are designed to keep them engaged, to keep them growing and developing."

The quest for improved training and development continues

Senior leadership as well as supervisors work with employees to identify the skills they need to do their best work and move on to future responsibilities. "We ask employees what training they need – we rely on them to identify their career goals," said Tumbusch. Leadership also provides budget support and recognition for development progress.

Aiming to provide the best available training, Crown develops the majority of its training programs and uses outside vendors as well. The company also works closely with local colleges and universities. "We have partnerships for our leadership development programs," said Hall. "Employees participate in advisory committees, sharing insight about curriculum offerings that can help to develop career-ready job candidates." Tumbusch noted that networking at AME regional events as well as its annual conference provides useful perspectives about effective training approaches. ☈

Lea Tonkin is the owner of Lea Tonkin Communications, Woodstock, IL.



Crown employee Kyle Mort works on a CNC mill simulator at the company's Fort Loramie training center.



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TACKLING WORKFORCE

The answer isn't always "bring on the robots"—three things Firstronic tackled to improve performance

BY PATRICIA E. MOODY

From Massachusetts, a digital pioneer practiced at growing and then losing large manufacturing businesses, we talked with Michigan's John Sammut, CEO of Firstronic, a survivor and innovator in the U.S. electronics sector who is proving that Made in the USA is not just a bumper sticker. Sammut wants to keep and even grow electronics manufacturing in the U.S. — in fact, he wants to ship Firstronic product into the heart of outsourced territories India, Korea, China and the rest of the Far East. And amazingly, the company is, in fact, doing just that.

Sammut and his team combined 1) specific automation with workforce selection and training innovations, such as the Pre-hiring Assessment Survey, with a trick he learned in grad school



CHALLENGES

about 2) pruning the customer base, and now, 3) onboarding designed to cut turnover and improve quality.

Despite Firstronic's positive growth and well-honed niche operations, the team has encountered new challenges. Workforce turnover, for one, with a direct correlation to product quality, has tested the company.

We asked CEO Sammut to review the past year. Although Firstronic's pioneering spirit had taken the company far into the electronics business, we wondered what new challenges had appeared on their horizon, and if their performance continued to climb.

"The business has done very, very well this past year," Sammut said. "We grew 35 percent last year, and we're on track

to do 50 percent growth this year. We have reshored a couple more significant programs that were being produced offshore in Mexico and Asia — plus, we're competing with guys who wanted to take business offshore.

"This has been an overall theme for our growth; companies recognize that they don't have to order product from thousands of miles away to be competitive. The numbers are looking good. With 35 percent growth last year, we're up to 175 employees in our Grand Rapids, Michigan, plant, and nearly 300 overall."

Customer Rationalization Matrix, building the right customer base

Sammut used an approach he learned way back in graduate school to assess the customer base. He wanted to

FIRSTRONIC PRODUCTS

AUTOMOTIVE: Electronic shifters, seat actuators, LED lighting inside the vehicle, fuel pump controllers, overhead consoles

MEDICAL: Patient monitoring systems, medical security in dispensaries

INDUSTRIAL: Electronic ignition for lawn maintenance equipment (trimmers, blowers, chainsaws, etc.)

Wistron large-screen TV controllers

Ford, GM, Chrysler, Jaguar, VW and Toro, Stihl Deere



As part of the company's new onboarding process, all new operators are assigned a mentor to provide instruction, coaching and support.

maximize use of their resources, and make sure the company was working with partners that fit. Firstronic developed an innovative approach to strategically managing the customer base.

He explained, "The company does best with the right customer mix. We reduced the customer base to 15, and we continually refine it. If a customer isn't growing at the rate we want, that means we can't have a dedicated customer focus team, so it's time to transition this customer to a smaller regional electronic manufacturing solutions (EMS) provider and reassign the team to larger opportunities. We know that we can achieve more growth with fewer or the same number of customers if we continually review and refine the cus-

tomer base. Typically, the way many companies manage this is counterproductive — they spend resources on accounts that are not going anywhere. We would, however, prefer to trim the customer base, so that's what we started."

Despite the logic of "hiring the best customer," the Firstronic approach was bound to produce reactions in a mixed customer base. Sometimes customers, particularly sector giants, are unaware of how their supplier policies affect smaller operations. But Sammut had an answer to that as well. "They are quite positive. It's amazing; either they identify that they would like to work with us, and move to us and consolidate, or they recognize we aren't a good fit — revenue, mix, etc., but we will help them find a supplier that is a better fit. We still have some customers that aren't in the top right quadrant of our favorability matrix. Over time, they come to recognize the value in this level of service, and they work with us to broaden the relationship as they consolidate their supply base."

Hiring the best workers for the best customers

One of the challenges the company had with hiring the right workers was solved by administering the AcuMax test found at acumaxindex.com to potential hires. One

may take the personality test and learn that although they could work on an assembly line, even with more and more money, a career there wouldn't last. With that test, Firstronic found a screening resource.

Employee retention

But Sammut mentioned another challenge that, despite the U.S.'s unemployment rate, continues to call for attention: turnover and retention, especially as they relate to ongoing training and quality in manufacturing. "We initially had some challenges with turnover, but our VP of operations, Steve Fraser, and our director of quality, Tony Bellitto, put together an onboarding program that moved the needle. Bellitto knows that to improve quality and reduce turnover, the problem has more to do with the consistency and frequency of interaction, of communication with employees — how often we have reviews, giving regular feedback, setting performance targets, conducting ongoing training with more consistent assessment."

So the management team got to work on retaining the good workers they had hired. Too many were leaving within their first year, driving the turnover rate up, especially on the fourth shift (which includes every Friday and Saturday



Among other products, more than 2 million electronic shifter controllers have been assembled at Firstronic's Grand Rapids plant.

night). Management realized that training was timed to deliver an overwhelming blast of information in too short a time. Further, once third- and fourth-shift people were onboard, they found themselves somewhat isolated and had less help and coaching from the people who conducted the training.

Communications, it turned out, was even more important to retaining new workers. HR, training and management worked harder to track and communicate with new employees, and to provide a support network for them as they started out. That required appointing a mentor (who was appropriately compensated for this new, extra responsibility), to make them feel that they were part of the Firstronic team and provide ongoing day-to-day coaching.

Recognizing that on-the-job (OJT) training remained key to onboarding new employees, management clarified appropriate and effective OJT approaches. Further, employees are required to remain on the first shift through their initial two-week training period. OJT was deliberately balanced with appropriate classroom training on safety, kanban, lean and the ERP system. At the end of having successfully completed the onboarding process, new employees are recognized in an all-hands meeting for having completed their training by being outfitted with a new burgundy “graduation” smock (as opposed to the blue “trainee smock” they had been issued at the start).

“We found that the onboarding program reduced our turnover rate from the mid to high 30 percent, which was very frustrating, to our current rate, just under 5 percent. Our team is proud of the world-class onboarding and training program that we have developed. It has not only resulted in significantly reducing the turnover but has also helped us to drastically improve our quality,” stated Bellitto. Firstronic continues to monitor the results of its onboarding process (retention rate



A new assembly operator (left, blue smock) is trained by his mentor.

through the 60-day training cycle), as well as the longer-term turnover rate (employee turnover after fully completing the training and probationary period of 60 days).

“The complete revamping of our onboarding and training processes has resulted in significant improvements in efficiency and production throughput throughout our operations,” said Steve Fraser, Firstronic VP of Operations. “We are now benchmarking at close to world class levels for these metrics and we’re continuing to drive improvements each month.”

The flywheel effect

Sammut elaborated. “We know that the higher the revenue and capacity utilization we have achieved, the higher the efficiency we’ll see. The result is higher employee production output. Lower employee turnover gets us better quality and better efficiency. Overall, the velocity of production has increased, which means that production standards of throughput per hour per product have increased. It’s the flywheel effect: the faster you go — although it’s hard to turn the wheel the first time — the quicker your volume and speed pick up as we gain more and more momentum.”

Automation and the customer mix

Sammut shared a special insight into how he looks at selecting the right capital equipment as a competitive advantage, and it’s not all about buying the latest and greatest in robots and automation. In fact, for Firstronic, capital equipment represents an opportunity to get creative.

“What we found on automation,” said Sammut, “is that one of the benefits of being in specialty segments of the EMS industry — not cell phones, not ultra-competitive segments of industry — is that we don’t have to invest in the latest automation and technology every year. We tend to use two generations’ older production equipment. The companies in this industry that focus on ultra high volumes for cell phones and computers, however, need the latest and the greatest every year. But we are in a special niche segment with fewer customers that we can focus our resources on, so we can compete with equipment two to three generations back. So we buy used equipment that we know is still very functional and competitive at a fraction of the original cost.”

Named a “Pioneering Woman in Manufacturing” by Fortune magazine, Patricia E. Moody is a manufacturing management consultant and author.

BUILDING A FRAMEWORK

The makings of a lean health care transformation

DR. JOHN TOUSSANT



We all know the reason the health care system must change. But it is remarkable that medical error is now the third leading cause of death in the U.S., and yet there is little outcry. The industry has a burning platform for change; 250,000 people will die as a result of medical error this year. This incredible outcome is not driving change. The question is why? My hypothesis has been that leaders just don't know what to do to change one of the most complex human endeavors in existence. At The ThedaCare Center for Healthcare Value (TCHV), we have embarked on what we are calling the "transformation journey." Our team members, including myself, work with CEOs in a few hospitals and health systems in North America to teach the principles of lean. The following article describes what we are finding and what we have learned.

Defining purpose

In 2015, I published "Management on the Mend." The book is a framework of the core set of activities that we have observed to be success factors for a lean health care transformation, depicted by a house metaphor (See Figure 1).

The floor of the house is cemented by purpose, values and principles. It is the role of C-suite executives to determine purpose. We are finding that most leaders have done a poor job of defining purpose. In one organization, I recently observed a team that had defined purpose with 37 different metrics. After spending two days redefining what was important, they had reduced the number to 13. This is still not good enough. The Munson Healthcare team in Traverse City, Michigan, redefined "True North" metrics and reduced the number from 20 to 7 (See Figure 2). Until True North

is defined, it is impossible for leaders to decide what breakthrough strategies are required to achieve it. It is even more important to decide what initiatives can be deselected.

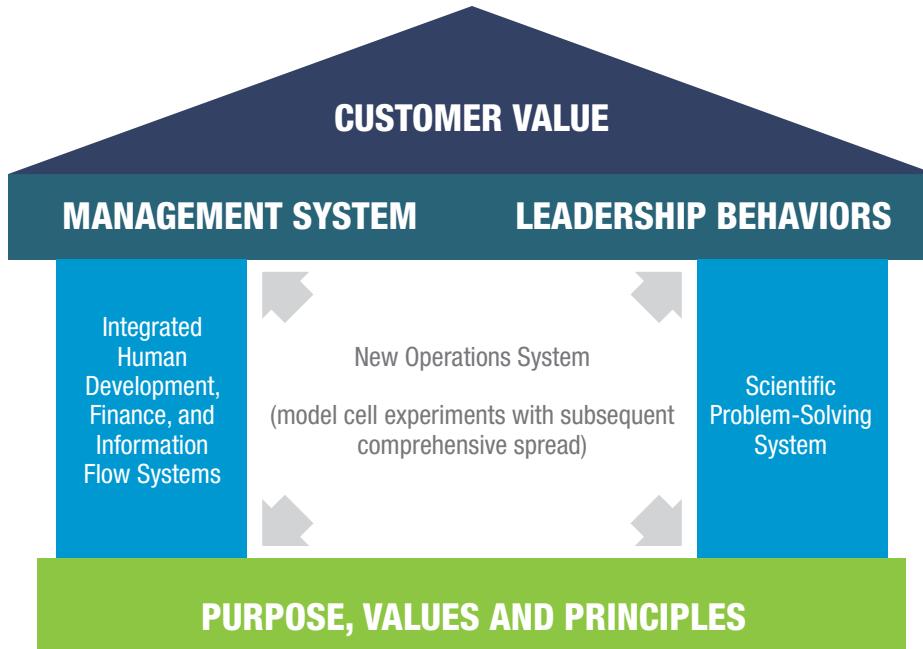
This is the other problem. There are too many initiatives in health care. When senior leadership teams are asked to write each one on a sheet of paper, we typically see 200-300. This provides no clarity for the front-line workers; in fact, it's the opposite. We then ask the C-suite team to create a filter for the initiatives. The teams run the initiatives through the filter and attempt to deselect (See Figure 3). At Munson, the C-suite reduced the number of initiatives by 25 percent.

The principles of lean

We have also learned that many health care organizations have had some exposure to lean. But it is usually the tools of



Figure 1: “Management on the Mend” System



lean without the behaviors and principles required for sustainment. The floor of the “Management on the Mend” house also includes principles. Most health care leaders have not defined these. But what we are finding is if leadership does start by defining principles, this naturally leads to key behavioral expectations. Then systems can be built and tools used to get results. The principles are the “why” behind the systems developed. We didn’t start there. We did value streams and kaizens and never focused on principles and behaviors. This was a mistake. Today in our coaching work, we start with principles first. Anchored to principles and the time freed up from the deselection of initiatives allows the front-line teams to begin work on the model cell, the next important activity in the transformation process.

The Model Cell

The model cell is an inch-wide, mile-deep approach to solving an important business problem. For example, if it takes six months to get an appointment in the primary care doctor’s office, that would be a good place

to start. What we have learned is the work requires radical redesign of care processes. This radical redesign may take a different skill set than we originally thought. When I was CEO, I thought that if we just had the front-line team at a clinic, any team involved would come up with a radical new way. I’m pretty sure now that won’t work, at least consistently, to create radical change. Instead, I believe that different front-line people have different skill sets. Some are disruptive thinkers and some are incremental thinkers. Both skill sets are required for organizational success. When developing radical new designs, disruptive thinkers are predominantly needed.

Tom Hartman, the father of the Autoliv Production System (see article beginning on page 8), described his experience: “A physicist is not a physicist is not a physicist.” In other words, there were some physicists at Autoliv who were great at taking an existing product and improving it. But when given a design challenge to create an entirely different product, some couldn’t do it. The disruptive physicists could start with a blank paper and

create something totally new. We should choose team members carefully as we consider designing radical new ways of care delivery. We should also understand the process for creating radical change is different than that for incremental improvement.

The uniqueness of the solution required is dependent on the amount of design thinking required (See Figure 4). Alan Ward’s book, “Lean Product Development,” outlines the process of set-based concurrent engineering by which multiple ideas are tested at once and compete with each other until the very point a decision must be made. These ideas start with deep customer research and end with a new product value stream. This is exactly what health care requires. In the Atrius Health innovation center, there is a poster on the wall that says, “Let’s obsolete it.” That means to disrupt the status quo.

The project that’s been front and center for several months involves understanding the frail elderly patients that call the office. At 4 p.m., if an elderly person calls with a problem, he or she is most likely directed to head to the emergency room. Based on a deep study of patient needs, the team ran an experiment. They started with one clinic. They created a “red phone” that was diverted to an advanced nurse practitioner (ANP) when an elderly patient called to say, “I’m sick.” The new process includes a visit to the patient’s home by the ANP — immediately. This experiment so far has led to a 33 percent reduction in ER visits and a similar reduction in hospital admissions. The model could not have been created without “disruptive thinkers” on the team.

Spread of the model cell

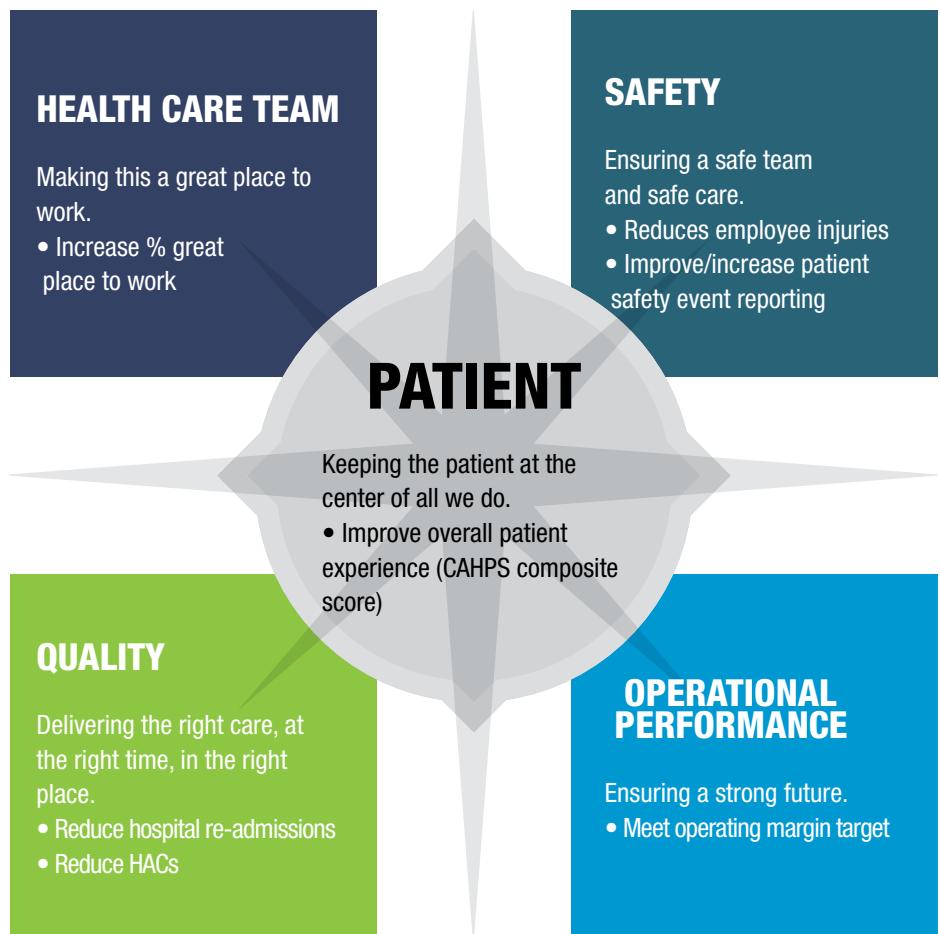
Once created, these new ways of performing work need to be spread. That cannot occur without standard work for physicians. Physicians must be engaged for the spread to be a success. At Zuckerberg San Francisco General, leaders have established a core set of

values and principles that all physicians who practice there are expected to abide by (See Figure 4). It is the responsibility of the hospital chief of staff that all physician leaders are trained in the tools listed and coached on the behaviors expected. This commitment leads naturally to physicians participating in redesign efforts that affect their specialty. So when it's time for them to change what they are doing in the operating room, for example, they have bought in. They understand the change because they were part of the team that developed it.

A learning we had at ThedaCare was that if the physicians are not part of the redesign team and don't understand the "why" of the system change, it is unlikely they will adopt any of the new standard work. Ten years after the original model cell work in ambulatory care, there has been significant decay at the spread sites. The root cause is twofold. First, the standard work for the provider part of the in-room activity was poorly documented, and second, there was no management system in place to support the standard. So each provider "customized" for him or herself what worked best. Providers began to have their medical assistants trained "their way" rather than having them trained to the standard. Providers created their own teams rather than utilizing the teams created through the delivery model process.

Cell leads (super-performing medical assistants), the "air traffic controllers of the office flow," became personal assistants to meet the provider needs rather than monitoring the daily patient flow, deploying staff resources to meet the demands of the day and helping everyone stick to standard work. This had disastrous results for everyone upstream of the process and everyone downstream (See Figure 5). There was no process to determine whether standards were being followed. Today, managers use in-room process observations to assure all staff, including physicians, are following the standard.

Figure 2: Munson Healthcare True North



The standard work for providers has been clearly documented and trained. Things have improved significantly.

The central improvement office

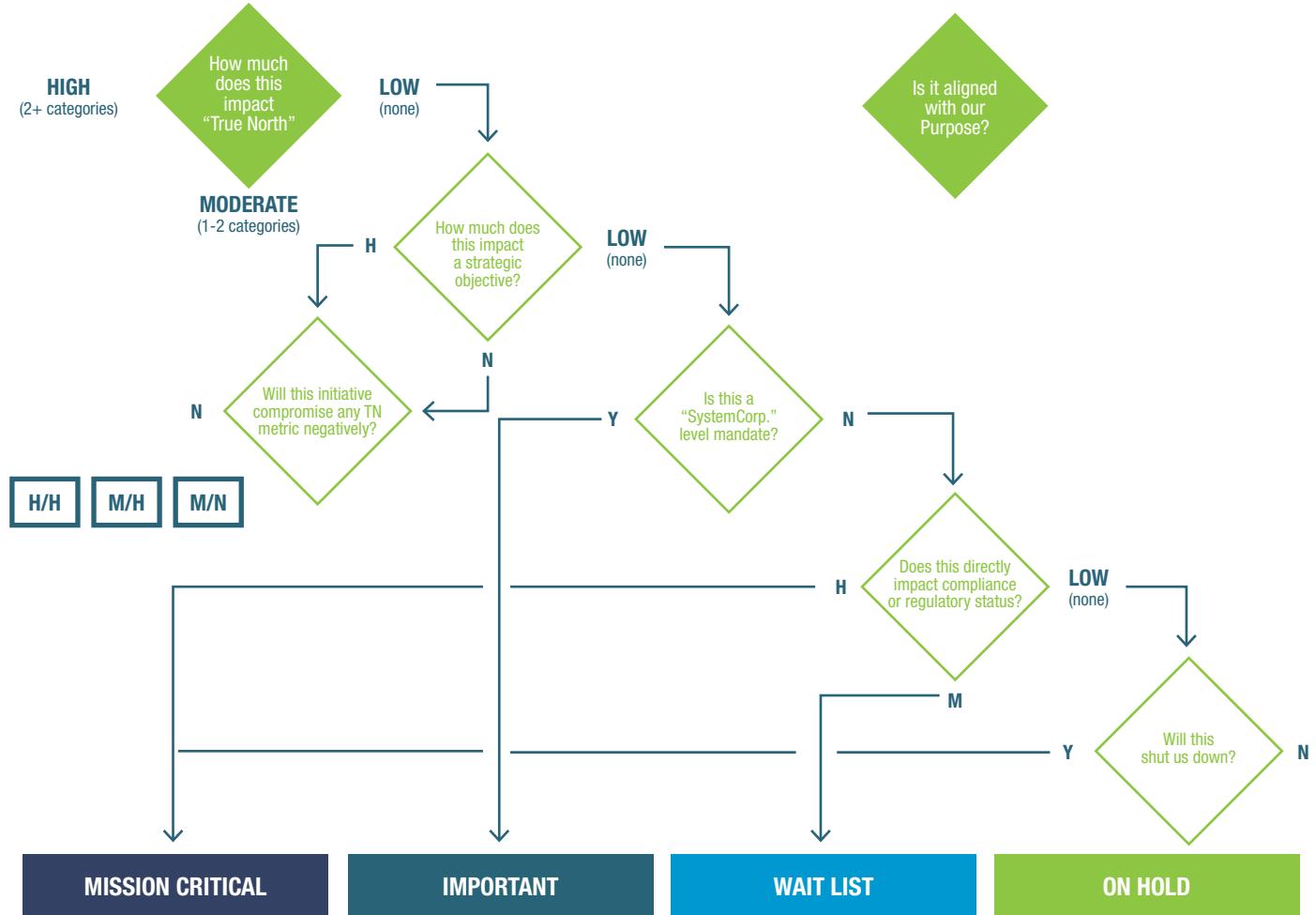
The role of the central improvement office in the transformation journey is very important. Our experience at TCHV is that most health care organizations have not clearly defined the role of the central office. And they do not have the skill sets required to support the improvement work. This is requiring rework because the leaders charged with creating the central office don't know what they don't know.

There are two ways to remedy this: 1) Hire an expert, like Kathryn Correia,

CEO of HealthEast in St. Paul, Minnesota, did when she hired world lean expert Didier Rabino from Anderson Windows as plant manager; or 2) Hire outside consultants deeply knowledgeable in lean to help build the skill set of the central improvement office. Caution: Make sure the consultants agree to work themselves out of a job over time. Most want more billable hours, not fewer.

One other learning about problem-solving in health care is that some problems are complex. Putting a front-line team on them that has no design-thinking capability can lead to incremental change but may not lead to an effective solution. The question is, what problem are you trying to solve, and

Figure 2: Strategic Filter



does the problem have tight constraints that front line teams can get their arms around? Or is it complex, with loose constraints that may require a different type of team with different skills? In my experience, most health care workers are not design thinkers. They have difficulty tackling problems that require a complete dismantling of the existing state.

The management system

Improvements don't sustain without systems to support the new processes — specifically, a management system. Part of that system we've already covered includes finding a way to dese-

lect initiatives, establishing True North and tying new systems back to core principles of lean. There are many other activities too. For example, every day at St. Mary's Hospital in Kitchener, Ontario, Canada, managers meet with supervisors, lead-shift nurses, and team members in front of a visual management board documenting all continuous improvement work to talk through needs, discuss progress on improvement projects, and consider new ideas. Every current continuous improvement project is on one of these boards, with progress being tracked by the unit. Directors and vice presidents routinely attend these team huddles to observe, mentor and find barriers

they might be able to knock down. Managers, vice presidents and the president of the hospital also routinely audit standard work to look for deviations and to verify that the standard, as written, still describes the best way to perform the work.

The CEO at St. Mary's and his team help ensure that everyone has time for these huddles, status checks and gemba walks (meaning visiting where value is created for the patient), by declaring that every weekday morning between 8 and 10 a.m. is a no-meeting zone. During this time, all managers are focused on the needs of the front-line caregivers and on improving

Figure 4: The Zuckerberg San Francisco General values and principles in three categories

	[principles]	[leadership]	[management]	[front-line]
ALIGN	Create value for the patient. Create constancy of purpose. Think systematically.	Establish Direction	Organize & Translate	Set & Achieve Goals
ENABLE	Lead with humility. Respect every individual. Learn continuously.	Motivate, Mentor, Inspire	Empower, Involve & Coach	Develop & Share
IMPROVE	Focus on process. Embrace scientific thinking. Flow and pull value. Understand & manage variation. Assure quality at the source. Seek perfection.	Breakthrough Thinking	Monitor & Maintain Predictability	Adapt & Adjust

patient care instead of being locked away in department meetings.

There is a menu of health care standard work that has been proven by leaders at St. Mary's and over 40 other hospital systems in the U.S. and Canada to work. In her book, "Beyond Heroes," Kim Barnas documents much of this standard work, activities such as defining the standard work for a day of the manager. When I was asked by one of my sensei many years ago, "What in your day is value added to your customer?" and the answer was, "Nothing," it became clear to me that I needed to develop my standard work. For senior executives, this looks different than for managers. My role included being at the gemba asking questions. Supporting my team by coaching and teaching A3 thinking. Focusing on True North and deselection. And managing the organization visually. No leader gets a pass on any of this, including administrative support functions.

The administrative support functions

In health care, administrative support functions such as IT, finance and HR can catapult the journey forward or kill a lean transformation. Human resourc-

es, the people in charge of people development and culture, many times have heavy organizational development backgrounds. They are the supposed experts in cultural development. Then along comes lean. This is threatening because it introduces a new set of principles that will have impact on culture. It's not uncommon for staff engagement scores to drop early in the transformation journey. Since HR sees

this as their responsibility, they can put the brakes on blaming lean. In fact, it's the change itself that is unsettling to staff. Any significant change is generally met with skepticism, and the lean transformation is no different. Two years into the lean transformation I led, I reported to the board the worst staff satisfaction scores in the history of the organization. That night at the board meeting, I asked the board

Figure 5: Uniqueness of solution vs. amount of design thinking

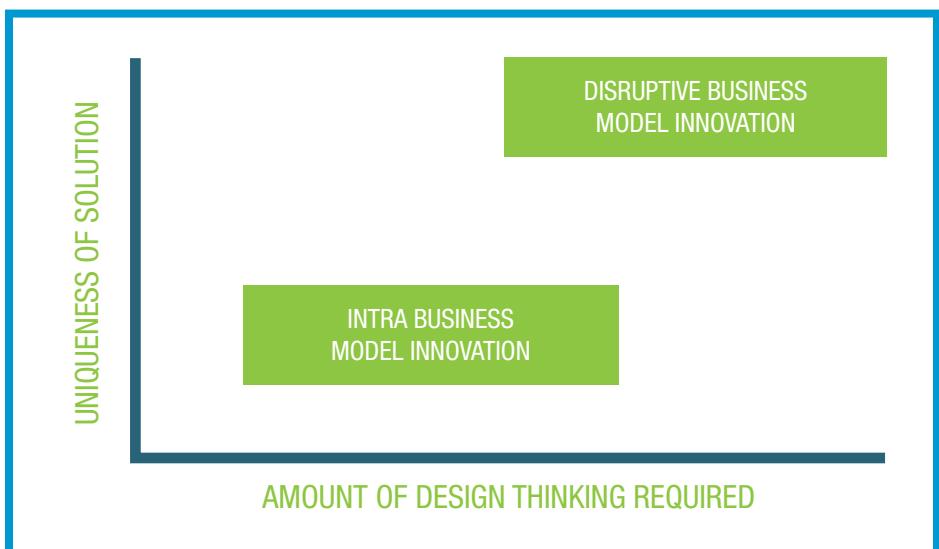
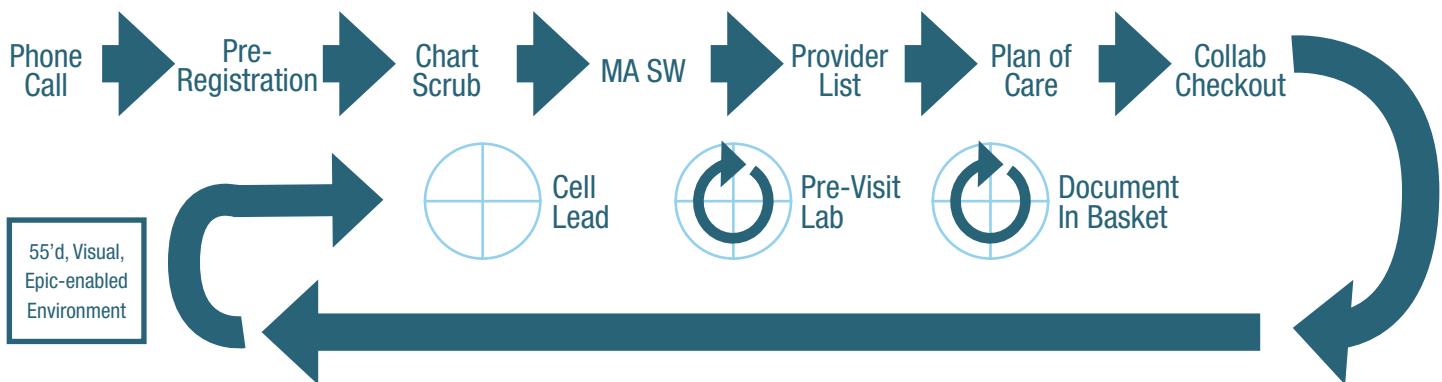


Figure 6: The original flow of the ThedaCare clinic redesign in 2006

The Patient Experience



The Supporting Processes



whether I should continue to forge ahead because it looked like I was destroying the place. The manufacturing executives on the board at the time said, "If the scores weren't going down, we wouldn't believe you were making change happen." They had been through this in their own plants. They knew and could support what I was doing.

Once HR settles in, they play a critical role. There are many activities that need to be done, including developing a redeployment pool; setting a no-lay-off philosophy; and building a people development system that includes the key behavioral indicators required for sustainment of the lean journey. In health care, because the industry is so bloated with waste, most leaders are unwilling to set a no-layoff philosophy. They think they will slash their way to efficiency. This couldn't be further from the truth, but it is the prevailing sentiment and is terribly damaging

to building an improvement culture. Salem Health in Oregon has developed a pool that employees can stay in for several months as they get retrained or redeployed to another area or department.

Finance is another important function supporting the model cell. Most manufacturing organizations have moved to rolling forecasts as a way to measure and improve financial performance. Health care is considerably behind. Forecasting is an estimate of likely future outcomes. It is where we think we are heading, adjusted quarterly (or more often) as new facts emerge. It is a far more accurate gauge of what will happen next quarter — what you will need in terms of resources and the amount of revenue you will likely pull in — and yet, in every company I know of that has switched to forecasting, it requires less time to prepare.

If we placed a hospital's forecast next

to a traditional budget, you would not see a huge difference in presentation. There would be columns of numbers in similar categories all the way down the page. The real difference between a budget and a forecast is in the behaviors each tool provokes. A budget demands that managers and executives make a 12-month assumption that bends resources in their favor, and encourages blame over investigation. It is just too easy to say, "Bill didn't hit his numbers; he's a bad manager." Forecasts adjusted with the environment are more accurate, and encourage proactive plan-do-study-act thinking.

Finally, getting the information needed to improve performance at the bedside is really important to support this radical change in thinking. Once organizations get good at daily problem-solving, the expectation for vital information rises. It's hard to improve without near real-time information on

the business. In health care, we have spent billions of dollars on electronic health records, but have no information flow to show for it. We input data but can't get anything meaningful as outputs. The emergence of Clinical Business Intelligence (CBI) is changing that.

"CBI is an IT system that collects and analyzes data and delivers the results to frontline clinicians in real time, helping them to make better decisions. It can be used to keep clinicians informed about everything from infections and iatrogenic injuries (those caused unintentionally by physicians) to whether units are over- or understaffed" (HBR-2013). Leaders are needed to build the mindset, skill set and tool set required for success.

Growth in the lean health care movement

A movement has begun in health care. It's lean health care. It's working, and more and more organizations are piling on the bus. We have developed a framework for success that, when followed, works. It's not a prescription, because there is no pill that makes a great lean leader. It's a compendium of examples and lessons learned that guide leaders through the rapids. It includes developing True North, deselecting strategic initiatives and deploying the critical few. It involves anchoring the organization in a core set of universal truths called principles. It involves creating a model cell supported by a central improvement office, administrative functions and a revolutionary management system that

replaces the usual autocracy in health care. The model cell is spread throughout the organization. It requires leaders to fundamentally change their behavior. The hardest thing is to build the culture of trust. It starts with sincere interest in the other person. Manifest by the type of questions asked. Do we genuinely care what the other person has to say, or are we looking for confirmation of our answers? Finally, listening is not waiting to talk. When all these systems and behaviors are in place, health care will change forever. We all know it can't come soon enough. ☺

Dr. John Toussaint's health care improvement work using Toyota Production System principles has been well documented. He has been a featured speaker at the AME annual conference, and was inducted into the AME Hall of Fame in 2012.

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CHANGE THE CONVERSATION

Focus on your biggest resource: people

ANNE C. GRAHAM

You measure ROA, ROE, ROI and ROC and a host of other key performance indicators (KPIs) in your business. But what we never see measured is Return on People™ (ROP), arguably the one key differentiator that drives competitive advantage in a global environment where all competitors have access to similar capital, materials, processes and technology.

People are your greatest asset; your greatest expense; your worst headache when you don't have the right ones; and your greatest source of talent, ingenuity and creativity when you get it right. It's time to add this people-centric benchmark to drive enterprise excellence.

A provocative new lens for enterprise excellence

Return on People is an often-overlooked measure of productivity that highlights how well leaders are able to transform the talent in their companies into competitive advantage and value that customers are willing to pay for. It's a hallmark of enterprise excellence, because it's a sum-total measure of people-driven efficiency and effectiveness.

When you view your business through the Return on People lens, you'll get an entirely new sense of what is really possible.

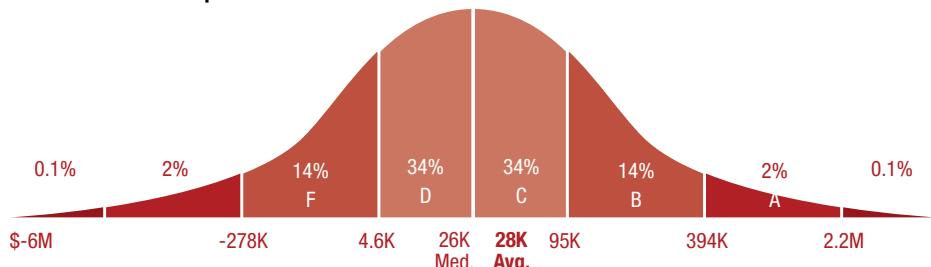
A powerful catalyst for people-centric organizations

If you're committed to building a people-centric organization, Return on People is the powerful metric that helps leaders and their employees jointly set the bar higher, commit to new levels of collaboration and achieve more than they ever thought they could.

People want to be the best; they want to win; and when they understand what "best" looks like, they become fully engaged in driving results at every level.

Delta Building Products applied the

Return on People™ of the Fortune 500



Return on People benchmark. "I recall your session as if it was only yesterday. You asked us all to plot our "profit per employee" on the chart. Unfortunately, at that stage, this indicator was in the negative — actually, negative \$9,955 per employee. While our management team knew we were in a loss position, the impact of seeing our 'profit per employee' at the 'bottom of the class' was very impactful. We immediately set a new goal. For our year ended Dec. 31, 2015, I am pleased to confirm that we achieved \$31K of profit per employee — the highest profitability levels in the organization's history," said Mikel Rhodes, CFO of Delta.

Are you average? Below average? Above average? It's time to find out.

The Return on People Benchmark is based on bell-curveing the profit per employee of the Fortune 500, but don't let that concern you if you're a small or mid-size company. When comparisons on both local and global lists of "top" companies are made, the distribution is the same, and the average and median are often similar. This metric is based on the Fortune 500 because it includes 72 different industry categories, which makes it easier for you to benchmark against an industry similar to your own.

At a glance

Over 50 percent of the Fortune 500 earn less than \$26,000 as their Return on People per year, yet the top 5 percent earns almost 10 times that much. Companies earning an "A" benchmark earn 14 times as much as an average firm.

When was the last time your senior management team sat down to take a strategic look at setting profitability targets based on leading your industry, rather than setting targets based on looking back at historical results?

Change the conversations. Change your results.

Follow the instructions in the Action Plan later in this article to calculate your Return on People, compare yourself to the benchmark and then have the conversation about whether or not your grade reflects all the hard work and energy you've been investing.

If there's a disconnect between where you're at and where you want to be, the Benchmark Report will point you to the P.R.O.F.I+T Roadmap overview that you can follow to shift your results.

In the manufacturing sector, the bar is even higher.

The average Return on People among manufacturing companies is an impressive \$67,700 — more than 2.5 times the average of the overall index. However, the vast majority are still only ranking a C, so there's work to be done. Are you keeping pace or falling short?

With profit comes prosperity.

With prosperity comes possibilities, as many of this year's companies found when they successfully completed major acquisitions or investments because their strong balance sheet made investing or borrowing to invest possible.

Clear Market Leader Honor Roll

Alphabet	HCA Holdings	Newell Rubbermaid
Apple	Home Depot	Nextra Energy
Archer Daniels Midland	Illinois Tool Works	Nike
Arrow	J.B. Hunt	Omnicon
Auto-Owners Insurance	J.M. Smucker	Precision Castparts
C.H. Robinson	KKR	Procter & Gamble
Carmax	Las Vegas Sands	Rockwell Automation
Deere	Manpower	Union Pacific
Enterprise Product Partners	McDonalds	UPS
Express Scripts	Microsoft	Visa
Gilead Sciences	NetApp	Weyerhauser

Fortune 500 Manufacturing Firms - Performance of the Return on People™ Benchmark



If every company simply set its sights one grade higher and built a proactive profit plan to achieve that goal, we would be a prosperous and thriving economy indeed. It's time to step up to the Profit Challenge.

Revenue is not a predictor of productivity, nor of sustainable enterprise excellence.

We consistently hear criticism of North America's low productivity, of a disengaged workforce, of too many unemployed and too many jobs going unfilled due to a skills mismatch. All of which may be true, to some extent. However, a very different picture can be painted in the manufacturing sector.

It's a picture of extraordinary successes that can only be achieved through fully engaged and productive people creating value for customers.

It's also a picture of extraordinary failure — of companies that consume immense amounts of resources to build and sell immense amounts of products and services but have nothing to show for their efforts at the end of the day, despite being some of the biggest companies in the world, on the basis of revenue.

Revenue is one of the most dangerous metrics by which to measure success, yet we all do it. On average, 40 percent of the companies in any given year that increase revenues will decrease profits; they're growing — but in the wrong

direction! Between the two extremes lie the lessons to be learned and the solutions to our lingering economic woes and turmoil.

Are productivity increases and Return on People coming at the expense of jobs?

Remarkably — no!

The fastest and most shortsighted way to increase Return on People is to jack up revenues and cut staff—but that's not what's happening in either the overall index or in the manufacturing sector, despite automation, Manufacturing 4.0 and the Internet of Things. The five-year trend for overall employment is almost flat.

- Between 2010 and 2014, the Fortune 500 added jobs at an average of more than 1 million per year, although certain industries and specific firms reduced headcount.
- In 2015, 282 firms increased headcount, 158 reduced headcount, and the balance stayed the same, for a net gain of over 1 million jobs.
- Yes, some firms are rightsizing, but 60 percent of manufacturing companies were hiring this year.

For firms that know how to transform talent into value, the focus is on hiring, knowing that there will be an ROI.

Take the profit challenge

Seeing where you're at on the Benchmark today and creating a plan to move one grade higher within the next year makes the Profit Challenge worth doing. Here are three conversations to have with your team about how you want to step up and see tangible business impact.

- **Leaders and laggards:** When I present this data at conferences, I always get the objection that some industries are inherently more profitable than others — usually from someone who's a D or an F!

A more valuable insight is that industry



averages don't tell the whole story—take a look within your industry for leaders and laggards to form a more complete picture of what is possible, where you're at today and where you could be.

It's common to have As and Fs within the same industry. Which do you want to be? You'll find there are clear leaders in almost every industry, indicating that some are leveraging their human capital better than others.

The challenging conversation: What goal should we set to lead our industry – and by when?

- Success stories abound: In fact, 23 percent of the Fortune 500 increased their Return on People by a full grade or more over the past year — a Profit Challenge that every leader should set as a goal for the coming year.

The challenging conversation: What goal will we commit to for the coming year – can we move up one grade?

- Surprises in the Return on People results may hold early-warning signals for your business. For the first time since 2011, the Average Return on People declined.

But it didn't just decrease a little bit; it plummeted. The report digs deeper into those results to find which declines are caused by headwinds or poor strategy, and which are highly strategic, as companies invest for growth.

If you do business with any of the industry sectors in the Fortune 500, you'll want to know the details, because it's going to make the difference between healthy revenues for you this year and your salespeople being told, "We don't have the budget for that!"

The challenging conversation: What do we need to do to build a Profit Plan, so that we can improve our Return on People, not at the expense of our people but through our people, by doing a better job of turning talent into value?

Beyond productivity: Here's what your return on people tells you about enterprise excellence

Unless you benchmark, how do you know with certainty that what you're doing today is a "good" result for your business?

Return on People can be a make-or-break metric, even in industry categories that are not traditionally considered

labor-intensive, because it points to challenges in:

- **Market relevance:** Many firms are facing massive market change in very different ways, as you'll see in this Report. Some are ostriches; some are taking moonshots. Some are in between. Which will you be? When customers are highly loyal and deeply value the products you provide, profitability follows. A good Profit Plan means grooming those relationships and dealing with those that are less beneficial, pricing for value, eliminating costs that shouldn't be there, and finding ways to innovate that your competitors find difficult to copy.

- **Execution of strategy:** Firms that lead their industry on this metric are the ones able to develop winning strategies and execute with intensity. Is the expert at execution in your industry you — or a competitor?

- **Level of engagement:** It's no surprise that many of the firms with high scores in their industry on Return on People also make the Most Admired and Best Company to Work for lists. They create value through engaging their people, not at their expense.

Alignment with core goals: Profit is simply a measure of delivering on your company's core purpose. Everyone wants to be the best. Using Return on People is a powerful tool to get everyone aligned and help them understand where they fit, how they make a difference and why it matters.

Your Profit Plan needs to surface and address each of these challenges in a positive and constructive way that is focused on creating value for customers, so that overcoming these challenges will turbocharge not only your people, but your bottom line.

Action plan

Step 1: Calculate your profit-per-employee to discover your Return on People.

This is not about judging you based on current results; this is about seeing possibilities.

- Compare your results to the earlier bell curve. Are you an A, a B, a C, a D or an F? Does that feel like the “right” grade for all the work and effort you invest in your business?
- Download your copy of the Benchmark Report from profitinplaininsight.com/Benchmark and compare your results to your industry or one similar to it. Are you better, worse or about the same? Don’t get complacent if you’re “as good as — this is about setting the bar higher, and following in the footsteps of those who’ve achieved extraordinary results in any industry.

Step 2: Take action on five ways to leverage your Return on People insights for continuous improvement and impact.

What would moving up a grade make possible in your business? Goals only become reality when we take next steps to achieve them, so here are five actionable next steps to get you started, once you’ve set the bar higher.

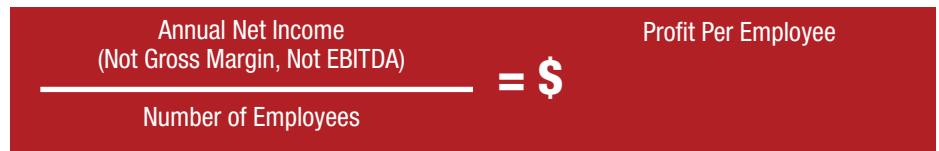
1. Start by evaluating your own industry category.

How do you stack up? How big is the gap, either below the minimum, maximum, or average of your category, or above results reported by your Fortune 500 counterparts? Where are you in comparison to the gold standards you aspire to, whether in your own industry or in other industries?

Action: Graph your industry.

2. Explore the gaps.

Delve more deeply into what other firms in your industry category are doing by scrutinizing their annual reports. By all means take a look at the financials in case you can spot people-driven positives there, but pay more attention to the tone and content of the written narrative. What are they doing to create value through innovation



or alignment? What are they doing to build value in their organization through engagement and getting it right the first time? What are they doing to capture value by leveraging the strengths of the organization into earning more profitable business from loyal customers?

Action: Learn from your competitors, then leapfrog them vs. copycatting.

3. Take a look at other industry categories.

Other sectors may share some characteristics with yours, e.g., the service industries, manufacturing, retail or natural resources. Are their profits per employee higher or lower than the average in your category? Can you identify why? Looking at Amazon and Barnes and Noble, which reside in different categories, for example, produced some interesting insights.

Action: Evaluate what noncompetitive insights from high-performing firms can suggest in terms of profitable strategies.

4. Explore the stories behind some of the highest-performing firms for between-category insights.

Are there stories in the press that help you pinpoint what they’re doing differently? Are there any concepts that can springboard your firm into a new and more profitable direction? Unexpected value-add is one of the best ways to confound your competitors and surprise and delight your customers.

Action: Don't overlook the opportunity to learn from unrelated industries.

5. Develop your Return on People plan.

Look at where you are at today, how you compare to your industry, and get clear on the level of Return on People™ that will enable you to do everything you want to

do in your business. What needs to happen next to create a cycle of continuous improvement in your ROP? Your best solution is to develop a Profit Plan that’s based on delivering value to your customers.

Action: Set a new goal and commit to implementing a plan to achieve it.

99 percent of business leaders stop at good intentions. Only 1 percent take action.

When I’ve spoken to thousands of business leaders and CEO masterminds at conferences and corporate events across the continent, 84 percent of them rate themselves as less than a 6/10 in terms of their satisfaction with their profits — a crucial component of the Return on People formula!

Most of them get a serious wake-up call when they score a C, D or F on the Benchmark. Often, I’ll see them sometime later and I’ll ask them how things have changed. Most look rather shamefaced and admit they haven’t done anything specific to change their results.

At the beginning of this article, you saw the success story of a different type of leader. One who gets the wake-up call, takes action and quadruples his profits in only a couple of years, transforming an at-risk business into a success story. If he can do it, you can do it. But will you?

Download your Benchmark Report and simply get started. It includes additional insights and resources that will support you in moving your score up a grade within the coming year. 

Bestselling author of “Profit in Plain Sight” and AME keynote speaker and volunteer Anne C. Graham is a profit and growth expert on a mission to help manufacturers thrive in any economy. She is the creator of ProfitU and the 5-Step P.R.O.F.I.+T Plan.



LEAN IN TO PEOPLE-CENTRIC LEADERSHIP

The most effective future leaders are those who can inspire people change as they impact process change.

LIBBY GILL

Whether you choose to embrace it or ignore it, the evidence of change is all around us. From smartphones to Starbucks and urbanization to Uber, phrases like digital connectivity and disruptive innovation have become as commonplace as the terms company man and assembly line were in days past.

So what does that mean for the leaders of tomorrow, particularly those in the manufacturing industry who must purposefully blend the best practices of people management with advances in lean processes if they wish to keep pace? How will they predict and prepare their workforce for the new normal of constant change?

As an executive coach and leadership expert working with organizations including Avery Dennison, AME, EY, Disney-ABC, Intel, IWLA, Microsoft and Wells Fargo, I see several workplace shifts emerging. While the core principles of effective leadership such as vision, integrity and accountability will always be foundational, following are four workplace trends of which future leaders must be mindful if they want to succeed in an increasingly complex and change-driven marketplace.

The chaos norm

The very nature of change in the workplace has changed. While there has always been an ebb and flow, organizational change today is constant, relentless and continually accelerating. The sheer pace of change, let alone the volume, is dizzying. Employees often feel as though they've finally found a systems solution that works or implemented a process improvement, only to be hit by the next wave. And they're right.

That's the new "chaos norm," where heightened competition, increasingly sophisticated (and demanding) consumers and rapid advances in technology drive the need for and the pace of change. One of the best ways to get comfortable with all that discomfort is to create an environment where people feel safe and accepted. Simple, but not easy.

Greg Williams is the director of enterprise excellence of Aera Energy in Bakersfield, California, and chair-elect of AME. Greg recently shared with me that after studying the concepts of people-centered leadership, he decided to introduce thirty minutes of personal sharing into his Monday morning strategy meeting. "At first, people were suspicious. But I stuck with it. Now, because they get personal, productivity is off the charts. We work to-

gether and support each other with trust and respect. The entire team dynamic has changed," Williams stated.

Goes to show you that shifting attitudes doesn't always require lots of research or fancy metrics. The simplest of solutions can also be the most effective. Of course, fear of change isn't unique to manufacturing. In my book *You Unstuck: Mastering the New Rules of Risk-taking in Work and Life*, I detail what I call the Immediate Negative Response (or INR), the knee-jerk resistance to change that is based on our biological survival instinct to avoid danger and seek familiarity. But it is the leader's role not only to overcome his or her own fear-based feelings, but also to ensure that employees recognize that while change can be anxiety-provoking, every new obstacle is an opportunity to learn and improve.

Function fluidity

Leaders and managers, especially those with hiring power, have long thought about employees in terms of track record — not necessarily a bad way to judge, as past behavior is often the best indication of future behavior. But tomorrow's leaders must begin to look at employees in terms of potential. Workers will be in a state of constant training as they are assigned

to teams and projects based on their ability to learn, grow, problem-solve and lead others. Tasks will be assigned on what a professional can do, rather than what they have done.

Mark DeFabis, CEO of Integrated Distribution Services (IDS) based in Indiana, decided to take a homegrown approach when it came to developing talent. Mark and IDS tackled the challenges of recruiting and training right from the get-go by partnering with a local community college in Indianapolis, as well as Ball State and Purdue, to help educators build their supply chain management program. "We observed that while most colleges were focusing their education on logistics and supply chain as practiced from inside a manufacturing organization, there were actually a lot more jobs available in the third-party logistics (3PL) world. In fact, most logistics positions within

a manufacturing organization involved managing a 3PL. So we decided to get in there and help them build the curriculum," DeFabis said.

Mark didn't stop there. He created an internship program, brought young people into the company and then moved qualified interns on to full-time positions. Workers learned firsthand, often while still in school, that 3PL warehouses were not the dark and dingy workplaces of the past (or their imaginations), but rather sleek and technologically sophisticated operations where ongoing education could be the route to a long and successful career.

The challenge for leadership is clear. Managers must come to know their team members' strengths and weaknesses on a deeper level than ever before, recognizing and rewarding traits

such as flexibility, strategic thinking and creativity. Professionals with a mindset for lifelong learning will be the new currency. For some leaders, as well as their employees, this will be incredibly frustrating. For others, it will be an exhilarating invitation to master new skills as they flow through the organization taking on new functions as needed.

Corporation as community

Paradoxically, as changes are implemented more and more swiftly, leaders will need to loosen their hold on the workforce. Through transparency of mission and constant communication, effective future leaders will foster trust and collaboration, encouraging co-workers to create deep and meaningful relationships, even fast friendships. With the right mindset, these relationships can flourish in shared physical space or virtually as improved technical connectivity continues to place us face-to-face across the hall or across the globe.

With flextime policies (and changing attitudes about people using them without penalty), global teams and 24/7 accountability, future leaders will need to create avenues for engagement, replacing bureaucracy with flexibility and hierarchy with collaboration. Engagement tools such as intranet portals, company-supported volunteer activities and free-flowing information will turn the workplace into an environment where employees want to be, rather than have to be.

The hope-driven culture

If the enormity of these workplace changes leaves you reeling, you're not alone. But there's hope for the leaders of tomorrow. Literally. One of the hallmarks of my coaching work has been to adapt principles of hope theory, based on an emerging body of research pioneered by clinicians from the medical and positive psychology communities.

Their research shows that among the advantages of having a high level of hope (not to be confused with optimism, which is a generalized outlook on life independent of one's actions and circumstances), hopeful people are more likely than nonhopeful people to:

- Set a great number of goals
- Have goals that may be more difficult to attain
- Be more successful at reaching their goals
- Have less distress and greater happiness than low-hope people

Yet, even when we recognize the benefits of hopefully embracing change, most of us will go to great lengths to avoid shaking up our lives. Don't we all know someone who claims to be dissatisfied with her job, boss or co-workers, yet never seems to do anything about it? Or a company that has gone through massive change management initiatives, only to have employees backslide into old behaviors as soon as they experience the least bit of discomfort?

Understanding why people resist change is the first step in figuring out how to get them to change. Here are some of the common resistance scenarios I see in the workplace.

• **Our biological hardwiring.** Change triggers our "fear center," the primitive area of our brain known as the amygdala. As part of our biological early-warning system, fear puts us on high alert so we can fight or flee when faced with danger. But if we don't understand that our brains may perceive the unfamiliar as danger, our anxiety may cause us to back down from changes that are not only harmless, but actually beneficial. Why do I feel so stressed?

• **Feeling out of control.** When faced with change, whether that's new people, systems or technology, we often feel out of control. Everything we're used to is taken away — at least, that's what it feels like — and

we're given a new set of expectations that requires us to shift our mindset and wade into a whole new reality. Who needs all that ambiguity?

• **Misplaced loyalty.** Changing our beliefs can make us feel as though we're leaving our trusted colleagues behind. When a new system is put in place or a new manager brings a different perspective, it can make us feel (even unconsciously) that we have to abandon the people or training we relied on in the past. Was my old boss really that bad?

• **Fear of failure.** Some people fear that a changed workplace may mean they're no longer relevant, that they've suddenly become part of the old guard and may not cut it in this brave new world. Employees often feel challenged that they might not have the proper skills or attitude to embrace the culture shift. Am I really up to the challenge?

• **Old habits die hard.** Most of us love our same old routines. We want to cling to the comfort of familiarity and may need some convincing that all this change actually adds up to improvement or if it's just change for change's sake. Isn't the world complex enough already?

But when leaders take the time and effort to clarify the benefits of change — explaining clearly why the change is needed and how things will be better once they are implemented — they'll begin to rally support. Roll out your change initiative throughout the company with a communication program customized for your culture. Involve people at all levels of the organization, including the "naysayers," who may have contrarian but nonetheless productive solutions.

Take consistent action, using strategic triggers including visual reminders, accountability buddies and touch-base meetings to stay on track. Above all, be realistic about timeframes and remember that change takes place over time, not overnight. If you drop the ball (and you will), pick it up and

get rolling again right away.

Light years beyond the old adage, "hope is not a strategy," hope theory comprises both the belief that change is possible and the expectation that specific and future-focused behaviors, starting with the individual, can create a positive outcome. Now, it's up to leaders to feed, rather than starve, that sense of hope within their cultures! ☀

Libby Gill is an AME keynote speaker, executive coach, leadership expert and international speaker. She is the former head of communications and PR for Sony, Universal and Turner Broadcasting and author of award-winning "You Unstuck: Mastering the New Rules of Risk-taking in Work and Life" and "Capture the Mindshare and the Market Share Will Follow." Learn more at LibbyGill.com.

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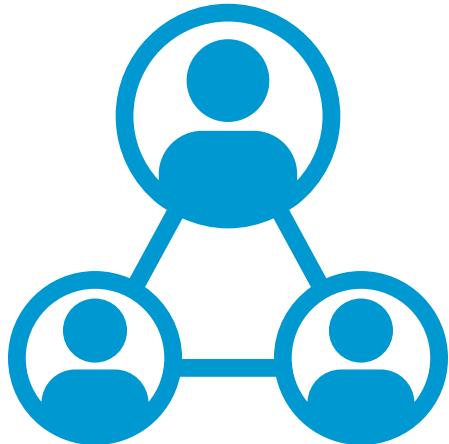
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THE FOUNDATION of impactful leadership

How can lean/ agile thinking help you be a more effective leader?

BY MICHAEL BREMER AND ANU GEORGE



Anu and I were having a conversation when she said, “The more I practice lean and agile thinking, the more it transforms my leadership style. I’m not the same leader today that I was three years ago.”

This article aims to offer and explain the hypothesis that leadership skills are shaped and enhanced with the practice of lean and agile.

Lean: Creating value, driving quality

Lean was initially derived from the Toyota Production System. It is essentially focused on a few key themes.

First and foremost, lean requires creation of value from the eyes of the customer. It requires outside-in thinking born out of a thorough understanding of the customer. It includes a series of steps and actions to help the organization continuously adapt and transform so as to constantly add value to the customer. It is the endeavor to ensure that whatever the organization offers the customer is defect free and of the highest quality.

Lean encourages deliberate decision-making at the lowest possible level of the organization appropriate to the situation at hand. Like the Toyota Production System, lean advocates leaders and organizations to learn through relentless reflection. Curiosity, an open and questioning mind, objectivity and an urge to continuously improve are traits displayed

by experienced lean adopters.

The agile journey

Agile mirrors the lean journey. The thought process is conceptually similar to lean thinking. It evolved out of a number of new software development practices from the 1990s when a core group of software developers came together in 2001 to create the Agile Software Development Manifesto. Simplistically, agile is developing software in rapid cycles with frequent deliverables to customers.

Users (customers), employees and an iterative development approach are central to the practice of agile. Like lean, understanding the needs of users is essential. It goes beyond just gathering requirements. The key question is, “What problems of the users are being solved?”

An iterative approach of experiments, trials, user feedback, learning, additional experiments, trials and so on are the backbone of building products that users fall in love with. Knowing the user, understanding their motivations, their likes, their dislikes, their habits and their routines are key to building great software.

The discipline of following the agile ceremonies (one can call them the different steps in the agile practice) properly, with the right mindset and attitude, is key.

An open mind, a data-driven approach

and a desire to continuously learn are fundamental to the retrospectives that identify opportunities for refinement and reduction of waste.

The squad/scrum team becomes the nerve center for all action. Members of the scrum team control their own destiny, as they are empowered to work with their customers to decide the pace and priorities for product development.

In talking to a cross section of executives, we found that the practice of lean and agile gently but surely nudges practitioners through a deep and fundamental transformation, developing a deeper respect for individuals and resulting in higher levels of trust. Almost every lean or agile practitioner we spoke to shared how they started off as a command and control type of leader and gradually moved to a more consultative coaching style. A sense of humility, a habit of self-evaluation, an intolerance for waste and a thorough understanding of customers becomes a core part of the practitioners' DNA.

A lot of us think that great leaders are normally CEOs or senior executives. But that isn't true. Great leaders are found at all levels in the organization. So what can you do to become a more effective leader or move toward greatness? Three words best summarize that transformation and the resulting evolved leadership style: scientific, spiritual and impactful.

At first glance, these words might suggest an irreconcilable conflict or tension — especially between the words scientific and spiritual. But let's dig deeper to better understand and to see if there are any actions you might take to become a more effective and possibly a great leader.

Scientific leadership

This phrase elicited the words expertise, objectivity, curiosity and observation from the practitioners. It is a case of following Toyota's principles of Genchi Genbutsu. It implies observing, experi-

menting, analyzing, learning, being data driven and having a certain sense of curiosity. Most importantly, it means using experiential learning to drive continuous improvement.

Connecting the "what" and the "why" with the "how"

Successful leaders are masters of scientific thinking. They make connections between different variables to predict a desired result. They set the goals for the organization and guide it to achieve them in the most effective way.

Scientific thinking allows the leaders to present their "theory" to deliver business results. They use data and metrics to make educated choices and decisions. Data-driven decisions drive transparency and openness in the organization, and they improve the theory. To ensure every employee understands the connection between the "what," "why" and "how," these leaders foster a culture of debate and open discussions. Michael Pacanowsky, Gore-Giovale chair in business innovation at the Center for Innovative Cultures – Westminster College, shared that organizations like W.L. Gore have "data-driven discussions" and "discussion-driven" decision-making. So people are more open and receptive to listening to alternative viewpoints.

Impactful leaders experiment and iterate their way to success.

Personal journey in self-actualization

Scientific leaders apply lean and agile concepts like "check and adapt" to everything they do, including evolving their own leadership style. It involves using humble enquiry to elicit deeper understanding. They constantly seek feedback, introspect, self-evaluate and push themselves to change and continuously improve.

Richard Sheridan, CEO of Menlo Innovations, said, "You know when you are not leading properly. Do you act on those moments of reflection? I think most people do not." But practitioners of lean and agile become more aware of their shortcomings. Their belief in quality lean and agile compels them to constantly evolve their leadership styles. They imbibe new



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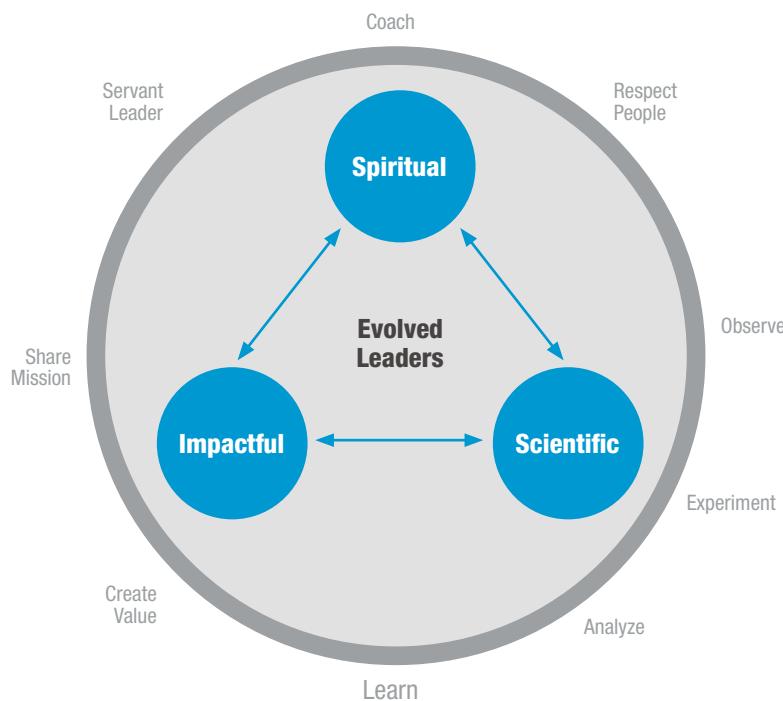
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streams of knowledge with “mouth shut; eyes and ears open.”

Embracing change; embracing technology

Scientific leaders embrace change. They keep their antennas up for new trends, proactively drive change and use data and measurements to calibrate and guide their next steps. They are learners who, by the spirit of humble inquiry, nudge their colleagues to introduce better ways of doing things. Scientific leaders also embrace technology. Not necessarily the latest cutting-edge technology, but instead choosing the technology most suited for their business processes and employees.

Spiritual leadership

This phrase elicited the phrases, “Concern for the whole person, a deeper understanding of the person standing in front of me, fully developing people’s skills and talents.” In the context of leadership, spirituality implies being “responsible toward one and other;

being connected with each other.” It is the passion for making things better and the desire to make the world a better place. It is free of any religious connotations; rather, it is about engaging with fellow colleagues, helping them and bringing joy in the workplace.

Yet this is not the way most organizations operate. Surveys from national organizations like Wyatt and Gallup consistently show 70 percent of employees are disengaged with the work they do and with their organization. A recent posting on LinkedIn had the following statements:

- People should lay low; they should not disagree with their managers.
- Employees are expected to show 100 percent commitment, but in turn, employers are only required to show commitment to the dollar.
- Do nothing, complain to no one, just do what you are told.

Hardly a fitting description of a passionate work environment.

Adopting a spiritual mindset is more

focused on building trust with a true respect for the dignity of all people who work for an enterprise. It involves engaging their spirit and their passionate support. Tom Hartman, a retired senior executive from Autoliv (see article beginning on page 8), now teaching lean in health care, said, “Most people initially are achievement oriented. Over time, they transform from what they can do to impact the organization to impacting the organization through others.” Tom noted the emphasis shifts from getting things done, to driving a long-term, sustainable path of growth, through the continued effort of others. It was a consistent insight shared by many others.

It requires practitioners to have a deep respect for people, and to develop their capabilities and critical thinking skills.

Maximizing the value of an individual — developing the “whole person”

When an individual joins an organization, that individual is only understood from an organizational perspective as a resume on a two-dimensional slip of paper. Spiritual leaders help develop the individual into a “whole” person. They strive to develop a deeper understanding of the value of each individual, and then help them to realize their potential. They respect humanity and strive to create an environment that maximizes the spirit and energy of each individual. Such leaders allow employees to control their destiny and empower them to solve problems and drive change. They recognize the differences in each person and allow every employee to be a distinctive “whole, real, authentic person.” Spiritual leaders create a supportive atmosphere where employees can repeatedly follow the virtuous cycle of hypothesis, experimentation, learnings, adaptations and failure or success.

Oneness — alignment in individual spirit and corporate spirit

Spiritual leaders not only share and explain the mission of the organization with their employees, but go a step further in

aligning the organizational mission with the employees' dreams. They coach, train and motivate employees to reach their goals. They assign work that gives life meaning. They create organizations with a clear, inspiring mission. They strive to create joy at work, knowing full well that happy employees are the most innovative and productive. Spiritual leaders create organizations that become vehicles for their employees' personal growth.

Supporting communities

Spiritual leaders are good corporate citizens. Humanistic and altruistic in their approach, they contribute to the welfare of the members of their communities. They respect the environment, laws and regulations and the people they work

with. Their understanding of their communities extends beyond the geographical location of their place of work and stay to the communities they can add value to, such as vendor partner, or agile and lean communities.

Impactful leadership

Impact is all about having a clear vision and delivering value. It is about expertise and knowledge, built off a deep understanding of customers and all aspects of the business. If you desire to become a more highly effective leader, this is a great starting point.

Whatever is meaningful in an organization drives the culture. No matter what elegant words might be contained within a vision or mission statement, if lead-

ership is focused internally, then that perspective dominates. If leaders talk about customers, but their actions only focus on costs, then people will focus on the latter. Elegant words are easy to write and they sound very nice, but actions always speak louder than words. And it is actions that drive the culture of organizations, departments and teams.

It's very easy to focus on micro results like profitability and shareholder returns. But those numbers are largely the result of the entire enterprise. And if leadership takes a narrow focus on those results, they miss much of what is important over the long term and may even focus on the short term, to the detriment of long-term success. Some of the most important things in life, we cannot go after directly.



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When the meaning changes or the purpose of work changes for the leader, it can bring about a gradual, but a definite change in the habits, behaviors and eventually mindsets of the practitioner.

Focus on sustaining

Impactful leaders build management systems that lead to the right behaviors, creating the right environment and the right culture, so that the organization can continuously grow “one kaizen at a time.” Impactful leaders recognize that knowledge workers in today’s world have a choice, and culture is important to attract and retain the right talent. They focus on driving impact through the “whole person,” driving impact through the “whole team.” With relentless pursuit of perfection, they challenge the definition of “good” and help create teams that are reflective, agile and innovative. Impactful leaders continuously push the envelope on knowledge, creating an organization that allows ideas that are evolutionary or game changers and revolutionary.

Alignment to the mission

Impactful leaders provide a clear vision of where the organization is headed. They articulate the mission in clear, inspirational words. For instance, health care organization ThedaCare states its mission “to improve the health of our communities.” Menlo Innovation’s mission is to “end human suffering in the world as it relates to technology.” Impactful leaders build the organization on a set of beliefs and principles for the organization that align with the mission and also connect the mission statement with the work people do. They take time to explain the “what” and the “why.” They encourage their teams to go outside and visit the “gemba.” They want their teams to know their customers’ vocabulary, their goals and their challenges. Truly impactful leaders connect the outside world with the organizational realities within.

Communication

The way you talk, the way you think, can be inspirational — or it can be just plain ordinary, nothing special. Saying, “I want to help people” is not as good as saying, “We help people in impoverished areas to attract employers into their community.” Or, “We process insurance claims” is not nearly as powerful as, “We make certain our department works in a way to seek a fair resolution for all customer claims.” The latter phrases are more specific and possibly more noble. To make those phrases truly powerful, they need to be true bell weathers for how the organization, department or team operates. People will become disengaged, when the leader has a noble sounding “why” but then proceeds to ignore it on a day-to-day basis. Passionate work starts with a clear and truthful “why.”

Impactful leaders are like preachers. They spread the gospel of the group’s mission, of the culture they wish the group to adopt and preserve, of the practices and initiatives they want their work group to follow. Art Papas, CEO of Bullhorn, noted he spends a lot of time communicating, through in-person town hall meetings, face-to-face dialogue and through technological tools like Slack.

Impactful leaders are also good storytellers. Richard Sheridan of Menlo Innovations says, “Stories are about creating feelings. Stories help you transfer that feeling to others. Storytelling is important to capture and share the spirit of the organization.” Impactful leaders use stories as catalysts to encourage more open discussions, to drive change and to build trust. They communicate at all levels.

As a leader, you may not realize just how much power you have. Gary Peterson is now the EVP of supply chain and production at the O.C. Tanner Company in Salt Lake City, Utah. He shared the following story: “A few years ago, I heard nothing but complaints about something we were trying to do. No one seemed happy about it, but they kept plugging away and trying to make it work. I kept wondering why we

were struggling and staying the course.

“Finally, after several months I asked, ‘Why are we doing this?’ The response? ‘Because you told us to do it.’ I was shocked! It was at that point I realized that I don’t want to drive things. Yet it is still hard work not to be the one with the answers.” And this is coming from a leader in a company that is doing an outstanding job of engaging its associates.

It is hard work to change and to not revert back to our old ways of behaving, but the benefits are enormous, so it is clearly worth the effort! You will be much happier in life if you constantly strive to elevate the people around you and treat them with respect, honoring their dignity.

Earlier, we suggested there is a tension between the words spiritual and scientific.

But, if the word spiritual is taken in the context of “being a good human,” stripped of its religious connotation, the word begins to take on a different flavor and meaning.

Spiritual then suddenly becomes a powerful word. It does not have a benign, passive stance to it. Rather, it becomes a powerful and positive force for success and joy. It becomes the foundation that allows an organization, department or team to self-sustain and grow in the long term.

Taken in that context, a “spiritual” leader needs to be a good observer, an active listener, able to assimilate different views, and remain nonjudgmental and objective. Aren’t these the very qualities that a “scientific” leader would need?

Effective leadership stands on three legs: the science, spiritual and impact. The three aspects work in unity and complement each other for effective leadership. ☀

Michael Bremer is president of The Cumberland Group and chairperson on the AME Excellence Awards Council.

Anu George is head of operational excellence for Morningstar, Inc.

Knowing is “step one” to improving

The first step in fixing a problem is in knowing that it exists. The faster your staff can identify a problem — ideally, the instant it happens — the faster they can solve it.

Occasionally a problem is an isolated incident with little impact to your process or organization. A blemished finish, a wrong supplier component, a momentary equipment stoppage. But most of the time, production anomalies are signs of deeper issues — they paint problems that could affect all products, suppliers ignoring specifications or equipment that is about to fail entirely.

Every little incident that occurs in a company is an opportunity to prevent big problems.

Unfortunately, most manufacturers can't identify problems as they happen (i.e., real-time monitoring), even for basic objectives such as quality or safety. The farther from production an activity occurs (e.g., logistics, supplier performance), the longer the delay in finding out what's really going on. Even worse is that some manufacturers have no capability to measure and monitor a range of metrics critical to operations and enterprise excellence (See Figure 1). How can you manage (or sleep at night) without knowing whether an employee was injured, production for a key product has fallen behind, a machine has stopped or that a work cell has run out of inventory?

World-class manufacturers are far more likely to monitor and measure in real time; for example, in our research, 41 percent of manufacturers at or near world-class status have real-time

monitoring of process-specific quality, and all have at least some capability to measure quality. Conversely, just 20 percent of non-world-class manufacturers have real-time monitoring, and 10 percent have no capability to measure quality.

Many improvement methodologies (e.g., lean manufacturing) incorporate status boards that highlight performance measures by shift and hour. Supervisors and frontline associates update the boards, ensuring awareness of operations trends. With the emergence of the Internet of Things — and the ability to digitally connect production equipment and data — these awareness practices now move at the speed of light.

Or should.

A majority of manufacturers report that the application of improvement meth-

ods in their facilities had increased their organization's profitability. But these efforts are rudderless without knowing where improvement is most needed — and, ideally, knowing in an instant.

Do you know what's going on in your plants, across your enterprise, and within your supply chain?

Isn't it about time you found out?

The 2016 MPI Manufacturing Study launched this year. Participants will receive a free Executive Summary of study findings as well as online access to a benchmarking database. 

John R. Brandt is CEO of global management research firm The MPI Group, mpi-group.com. He can be reached at jbrandt@mpi-group.com.

	1=No capability	2	3	4	5=Real-time capability
Process-specific quality	5%	8%	27%	29%	31%
Process-specific safety	5%	12%	26%	26%	31%
Location-specific inventory levels	6%	10%	28%	27%	28%
Process-specific pace or speed	6%	12%	27%	31%	25%
Individual equipment or machine performance	5%	16%	28%	28%	23%
Process-specific productivity (i.e., value vs. waste)	5%	10%	35%	29%	21%
In-plant material-handling performance	11%	19%	26%	25%	19%
Process-specific sustainability performance	13%	15%	35%	23%	14%
Supplier performance	7%	12%	37%	36%	8%
External logistics/distribution performance	10%	16%	37%	30%	8%

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To help members succeed, AME hosts events across North America, where our membership presents its greatest and most



enlightened best practices. By bringing members together to share, learn and grow, we inspire each other's journey to enterprise excellence.

AME is a not-for-profit, volunteer-based organization, with a practitioner-driven membership. We are passionate about



developing a modern-day manufacturing renaissance, driven by people-centric leadership.

Why are we so passionate about growing our people's knowledge and "leaning out" our processes?



We have learned that the leaner your processes are and the more engaged people are, the more productive you are and the more bottom-line success you will have.

We've learned that by leaning on the insights of members who have been there and done that, members are provided with a trusted network of like-minded people they can rely on to confidently make the changes needed to accelerate growth.

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FOLLOW A LEADER

By Matt Brown

Robert W. "Doc" Hall, Ph.D.

Professor emeritus of operations management, Kelley School of Business, Indiana University
AME co-founder and former editor-in-chief, AME Target magazine

A founding AME member who served more than 20 years as the editor of Target magazine, Doc Hall is a prolific writer of books and articles on lean, including "Zero Inventories," a book described as "the definitive work on JIT."

Owing to his interest in R&D and innovation, he's gravitated to "next-generation" technology, operations and business practices. Hall contends a major philosophical shift in business and economic practices — a pathway he calls "Compression Thinking"—is needed to meet the challenges facing us. To that end, he now is chairman of the newly formed Compression Institute.

What is your best memory of AME's start up?

AME really sprang out of some heated discussions several of us had during the 1977 APICS Annual Conference in Cleveland. At the time, APICS was really pushing job shop MRP and the high-flow production it is supposed to allow, but their assumptions didn't at all fit with what several of us were thinking at the time.

I remember one gentleman, Ed Reznicek from Daisy Air Rifle, saying, "We're not going to put up with this crap anymore!" Which led six or eight of us to huddle with "Rez" in the corner and discuss what we thought were better, more viable options. That huddle really was the beginning of the whole thing. We kept the discussion going at the next APICS annual meeting and it took on a life of its own.

Was that a defining moment? I don't know, but within a year, those of us that had seen lean were asking why we were talking about production planning and control instead of changing the processes to be controlled. Things began to take off.

Can lean improve (or even save) American industry?

Well, there are two sides to lean really: respect for people and production process improvement.

The people part always comes slower. You could pick up a lot of the process improvement techniques from the Japanese, but from the beginning, digesting "respect for people" was much harder.

The thing is, Toyota develops the people along with the techniques. They do that by developing people to develop the process. It is a fairly decentralized conversion with lots of people thinking about how different detailed variables can impact the process every day. Well done, this becomes an organic, dynamic operation, very flexible to change as necessary — the opposite of what many people initially think will happen.

For American managers, this is a difficult proposition, because to their way of thinking, control is necessary to make money. And it is, to some degree, still common to have senior staff develop processes without participation from lower-level employees.

You cannot fully encompass lean when you subscribe to that (American) model, but it is hard to buck some extremely deep assumptions of business and economics.



What advice do you have for today's young managers?

It's important to keep your mind open to different ideas of how you operate your business. Be alert to harbingers of change.

Also, beware of low-cost, high-volume commodity traps. If all you're doing is chasing a lower cost, the best outcome you can hope for is taking care of your stockholders at the expense of your suppliers and employees. Even using the lean philosophy, what's the end point of "competing with China prices?"

The wheels are coming off the old model of cost-driven manufacturing. We need to redefine an expectable quality of life and start competing through a change in our philosophy, values, etc. We call this "continuous regeneration," not just continuous improvement.

Of which successes in your career are you most proud?

Helping to found AME, as well as having the privilege of writing and editing so many articles while I was guiding Target for 22 years. Whatever happens with AME going forward, (the organization) was an important factor in the development of lean — AME did the right things at the right time. ☺



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