



LEAN MANAGEMENT JOURNAL

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SERVICING LEAN

Examining the adoption of lean in the service industry.

IN THIS ISSUE:

Services: lessons from Toyota: How did the leanest of companies apply the principles it developed in manufacturing to services? *Niklas Modig, Ryusuke Kosuge and Pär Åhlström* of Stockholm School of Economics talk about Toyota Sales Logistics.

Services and standards: stand off or stand up?: *Sarah Lethbridge*, senior research associate at the Lean Enterprise Research Centre, discusses the role of standards in a continuous improvement programme in a service environment.

A value creating paradigm: *Dr Ahmed Al-Ashaab* shares with LMJ the research on lean product development he is leading at Cranfield University.

American the Lean: LMJ crosses the Atlantic Ocean to look at examples of lean implementation in the United States. The five case studies included in this *It's a lean world* special are introduced by *John Shook*, chairman and CEO of the Lean Enterprise Institute.

The Harada Method: Norman Bodek and David Fennig talk about a new methodology to develop people in a company focused on improving.

The Fifth Column: In this month's column, *John Bicheno* (in disguise) addresses some of the most common misconceptions about lean in services.



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Dear reader,

We all have stories to tell about hours spent on the phone dealing with a recorded voice, desperately trying to get through to (dreadful) customer care. The service industry, arguably the one that makes our world go round and employs most of us, desperately needs to adopt lean practices to better understand customer requirements and concepts like respect for people. There is also a great need to streamline processes that are too often disjointed, inefficient and time-consuming. Still, the service sector is where continuous improvement has had less of an impact compared to other areas. Many argue that lean principles developed in and for manufacturing simply cannot work in a service or office environment.

Things are changing, however. As this issue of *Lean Management Journal* shows, adopting lean in services is not only possible, but also necessary. A number of articles in the June edition will help you to understand how lean can be applied to services: on page 7, Niklas Modig, Ryusuke Kosuge and Pär Åhlström of the Stockholm School of Economics explain how Toyota took the principles it learned in manufacturing and applied them to services provided by its dealerships in Japan.

Other contributions by Richard Bosworth and Erik Gillet (pages 16 and 19 respectively) analyse the differences between manufacturing and services with regards to lean, in order to understand whether the traditional principles and wastes are applicable to both in the same way.

This month's Process Focus concentrates on lean design and product development: I am sure Craig Squires' article (page 30) on value engineering will provide food for thought.

This month, LMJ travels across the pond and visits a number of US companies, for its It's a lean world special on the United States produced in partnership with John Shook's Lean Enterprise Institute (page 34). Don't miss, among others, the inspiring case studies on Acme Alliance and, to go back to services, Starbucks. It may seem impossible to think that 18,000 stores around the world, each different from the next, can follow standard practices, but the Seattle-based coffee company, which has now become one of the most recognisable brands on the globe, has managed to create a great training programme to foster a culture of improvement and encourage baristas to use 'routines'.

A witty and thought-provoking Fifth Column by John Bicheno (page 44) will help you to cement the lessons you will learn in this issue and draw some conclusions. Additional comment is provided by editorial board members Bill Bellows and Norman Bodek in our opinion section (on page 48).

The journal will soon launch its new website, leanmj.com – you don't want to miss it.

Stay tuned for more information! In the meantime, happy reading.

Commissioning Editor, Roberto Priolo

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54 **EVENTS**

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CANADIAN CREDIT UNION REAPS BENEFITS OF LEAN PROGRAMME

The lean programme implemented by First West Credit Union created over a year's worth of time savings, nearly half of which are in areas with a direct impact on service to members. Results achieved include eliminating over 4,200 hours of time spent by employees processing overdrawn account transactions and reducing the documentation for personal bank account openings by 25%. Identifying unnecessary steps in service processes helped First West streamline approvals for commercial mortgages, eliminating 900 hours and ensuring faster approval times. Working with Vancouver-based Lean Sensei, First West created Lean for Service, tailoring principles that were formerly used in manufacturing companies to better suit financial services.

FOOTWEAR MANUFACTURER LAUNCHES FACTORY RATING SYSTEM

Nike unveiled its new factory rating system, the Manufacturing Index, which looks at a contract factory's total performance and includes a deeper look at how it approaches sustainability. This Index elevates labour and environmental performance alongside traditional supply chain measures of quality, cost and on-time delivery. Within it, the company has developed an innovative Sourcing & Manufacturing Sustainability Index, which assesses factory performance on sustainability measures including lean, health and safety, and labour management factors. Nike also reported significant progress in waste reduction in footwear manufacturing.

RECORD PROFIT FOR NIGERIAN BREWER

Nigerian Breweries Plc announced the record turnover in 2011 was due to the company's continuous improvement programme in the supply of its products as well as the increased investments in its brands. Nicolaas Vervelde, the company's managing director, said that effective cost management and enhanced human resource development contributed to the good performance, noting that innovation played a key role as well.

ONLY FOUR IN 10 UK FIRMS USE CI, RESEARCH FINDS

According to a report, "Building Operational Excellence", published by Cranfield University and consulting firm Suiko, only 41% of UK manufacturers deploy methodologies like continuous improvement and total productive maintenance. The report also identified a slowdown in the movement of production abroad and found that the level of skills in UK factories has improved.



TQM AND TPM IN A MALAYSIAN PLANTATION

Borneo-based Keresa Plantations has implemented best management practises to improve yield per hectare and oil extraction rates. The company is targeting 142,000 metric tonnes of fresh fruit bunches. General manager AK Kumaran said: "We have a Total Quality Management Unit to monitor all field operations with a continuous improvement approach. We intend to recruit more smallholders around the plantation to deliver more certified sustainable palm oil to Keresa Mill Sbn Bhd. The mill, which in 2012 is expected to process 244,651mt fresh fruit bunches and produce 53,823mt of crude palm oil, started using total productive maintenance, which comprises of preventive maintenance and predictive maintenance."

If you have any news that you think would interest and benefit the lean community please let us know. Send submissions to the commissioning editor Roberto Priolo: r.priolo@sayonemedia.com

INTRODUCING YOUR EDITORS

Articles for *LMJ* are reviewed and audited by our experienced editorial board. They collaborate on comment against articles and guide the coverage of subject matter.



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More information on our editorial board, their experience, and views on lean is available on the *LMJ* website: www.leanmj.com



Lean services: context dependent

Lean is context dependent – have no doubt! It was developed within manufacturing, private industry and although there has been a significant rise in its use in service, including public services, a number of challenges have emerged in the adoption or rather, should be, adaption of the philosophy. These challenges range from the drivers of improvement to mindset to understanding tools and techniques.

Let's not forget that there is no fundamental reason or logic why lean could and should not apply to services - its participative nature and track record of providing efficiency, cost savings as well as effectiveness at the same time as embedding a culture of continuous improvement is imperative for services as well as manufacturing.

However, particularly within public services, there have been some common barriers to continuing engagement with lean. These may relate to cultural barriers but include poor understanding of the relationship between capacity and demand, command and control structure that obstructs responding to customer demand and a belief that lean is not applicable to services. Within services there is also a common misunderstanding of the notion of standardisation – seen as not being able to respond to the personal needs of the customer.

However, let us remember that there is a need to separate the standardisation of the process and standardisation of the outcome – we can standardise the process including 'menu' type options based around types and patterns of demands, for example runners, repeaters and strangers, thus allowing the outcome to be personalised or customised. We have seen organisations such as Dell and now Subway use such approaches: being able to customise from a standard offering (or process) gives the benefits of value, flow as well meeting customer demands and requirements.

Over the past few years I have been developing a framework for lean implementation and sustainability for services (House of Lean) consisting of: bedrock and foundations represented by the steering group and project team, as well as ongoing training and development. On top of these are essential organisational readiness elements which are critical in adapting lean in services: the ability to understand demand and capacity; an understanding of value; strong committed leadership; maintaining a process view; a communication strategy; engaging in co-production; the ability to link activity to the lean strategy. Then there are the tools for lean planning and implementation: assessment, monitoring, and improvement. Assessment tools include: customer and stakeholder analysis, process mapping, and value definition. For monitoring there are tools such as: benchmarking, competency frameworks, performance boards and workplace audit. While, for improvement, tools include: control charts, cross functional teams, 5S and rapid improvement events. Drawing all these elements together will allow service organisations to develop stable, robust processes with a continuous improvement behaviours.

It is important to note that lean must not be viewed solely as a cost cutting exercise. Instead it must be considered as an approach which could turn a difficult situation into an organisational opportunity, improving the quality and delivery of services by re-examining the value provided by those public services, and restructuring the ways in which they are delivered.

For more information, check out the executive briefing available at this link: www.aimresearch.org/uploads/file/Publications/Executive%20Briefings%202/AIM_Lean_EB_FINAL.pdf

Services: lessons from Toyota

The concept of lean is increasingly being applied in various types of service industries. But how did all-time lean champion Toyota take the lessons it learned from manufacturing and apply them to services? *Niklas Modig, Ryusuke Kosuge and Pär Åhlström* of the Stockholm School of Economics discuss the development and characteristics of Toyota Sales Logistics.



Although there is a wealth of knowledge and experience on lean in non-manufacturing sectors, what is less known is how Toyota itself applied its celebrated Toyota Production System within the services. This despite the fact that it is almost twenty years since Toyota Motor Corporation started to apply TPS within the car dealer industry in Japan. The concept known as Toyota Sales Logistics (TSL) is considered the most well-developed “Toyota style” service concept in the world.

THE DEALER NETWORK OF TOYOTA IN JAPAN

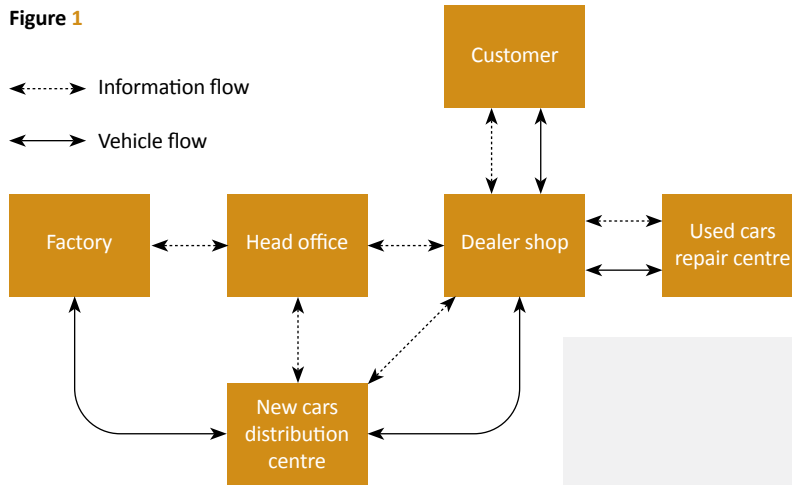
The Toyota car dealer industry in Japan is characterised by long-term relationships between TMC and approximately 300 independent car dealerships of which TMC only owns a very small share. The company therefore offers various types of support to the dealers in order to maintain a close and collaborative relationship with them.

A dealership company normally consists of a head office, distribution centres, repair and renewal centres for used cars and on average twenty car showrooms. The head office coordinates and controls the operations between the different units and the factory. A newly produced car is delivered from the factory to the distribution centre where the final assembly of supplementary parts is conducted. The car is then shipped to the dealer for final hand-over to the customer. In Japan it is common that a car showroom offers both sales and service, which means that the dealer usually continues to have contact with the customer after a new car has been handed over. When the car is getting older the customer can exchange it for a new one. The old car is repaired and renewed and sold to another customer. The structure of the industry is illustrated in figure 1.

QUALITY PROBLEMS IN THE 1990S

The Japanese car market grew steadily until the end of the 1980s. By using strong financial incentives, TMC encouraged the dealers to sell as many new cars as possible. After-sales activities were neither prioritised nor seen as important compared to selling new cars. Every sales person was focused on maximising performance in terms of sales outcome. The level of coordination was very low and there were not many standardised

Figure 1



procedures. Similarly, service technicians were doing their job in a discretionary manner. Lack of standards and under-developed routines made it difficult to manage and plan the service operations, and the outcome also varied a lot between different service technicians.

After the economy collapsed in 1989, the market for new cars became sluggish. The low level of sales, productivity and service revenue became apparent. In this context, Toyota set out to improve the dealership operations. Akio Toyoda, the current CEO of Toyota, recognised that the dealership business was full of waste and faced severe quality problems. He saw a big potential in applying TPS within the various service processes: in 1995, through close collaboration with selected dealers, experienced manufacturing experts started developing a new service-oriented concept, Toyota Sales Logistics, which today is the leading “lean service” concept in Japan.

Figure 2



DEVELOPING TOYOTA SALES LOGISTICS

The overall intention of TSL was to increase customer satisfaction, through continuously improving the flow of people, cars, parts, information and money. More specifically, the aim was to increase quality, develop stable and short lead times and dependable deliveries. The customer should be the main focus. Achieving this implied a chance to improve productivity and customer retention.

The development of TSL took place sequentially, through what Toyota itself calls “systems”. Basically these systems are directed to various kinds of key processes within the car dealer industry. Toyota started with the most severe problems, using a few car dealer shops as a test ground, and by focusing on one process at a time it developed, tested and improved the various systems. These systems were then spread to the rest of the Toyota dealers in the form of “packages” of training, support, methods and tools. The various systems and their development are illustrated in figure 2.

EXAMPLES OF HOW TSL HAS BEEN DEVELOPED

In order to illustrate how TPS has been applied within the car dealer industry, we briefly describe the development of two systems below.

New car logistics system

This system basically handles the process from order to the delivery of new cars. The process starts when a customer has signed the contract at the dealer shop and ends when the car is delivered and payment is finalised.

Prior to the development of the TSL system, it was common for dealers to lack control over the distribution process. The process was characterised by an inefficient flow of information between the different units resulting in an even more inefficient and unpredictable flow of cars. Each unit only focused on its part in the delivery

process. The coordination between the units was almost non-existent. As a result, sales personnel found it difficult to provide accurate information to the customers on when the cars were to be delivered. The confusion and lack of confidence in the system made the sales personnel deliberately delay the hand-over date, which resulted in a situation where a lot of cars were waiting to be picked-up. This demanded a lot of space at the car showroom. Long waiting time, inaccurate information and defective cars made customers very unsatisfied.

The TSL system took a total process perspective and developed a highly standardised and transparent procedure, which allowed a shorter and fixed delivery time. Irrespective of where a car was in the distribution process, each unit could continuously follow and control the progress. Information was communicated through different visualisation boards that were continuously updated, displaying the exact delivery status of a specific car. By referring to the boards, everyone could pursue progress control and thus prevent anticipated problems or solve the problems before they reached the customer. It was now possible to deliver high-quality cars rapidly. The standardised and visualised process allowed the sales people to have a close and clear interaction with each customer.

Service logistics system (car inspection)

In Japan car inspections must be conducted three years after the purchase of a new car and every second year thereafter. Traditionally, car inspections would involve a dealer employee picking up and dropping off the car at the customer’s home. However, since the technicians who carried out the car inspection were often very busy, it could sometimes take several days before the inspection started. This, together with the fact that land is a scarce resource

in Japan, led to many problems associated with over-crowded parking lots. Cars had to be moved back and forth all the time and they were sometimes damaged.

A single technician would conduct the actual car inspection. Even if the actual inspection took three hours, it usually took a few days before the inspection was completed because the technician would often work with different cars at the same time. The actual content of the inspection was standardised by law, but the procedure followed no exact sequence or routine. Every technician had his or her own unique approach. The lack of standards meant that the inspection process was difficult to manage and predict, which led to planning difficulties. Furthermore, the quality of the inspection varied greatly between different technicians. Still, the technicians were all

“ Prior to the development of the TSL system, it was common for dealers to lack control over the distribution process. The process was characterised by an inefficient flow of information between the different units resulting in an even more inefficient and unpredictable flow of cars //”

Figure 3

	New car logistics kaizen	Service logistics kaizen
Operational perspective	<ul style="list-style-type: none"> ■ Decreased throughput time of distribution process ■ Decreased number of parked cars at the shop ■ Higher level of coordination and control ■ Faster and secure payments 	<ul style="list-style-type: none"> ■ Decreased throughput time of inspection process ■ Decreased number of parked cars at the shop ■ Decreased inventory level of material ■ Increased productivity
Customer perspective	<ul style="list-style-type: none"> ■ Faster and more dependable delivery time ■ Increased ability to receive information regarding delivery status ■ Higher level of customer service ■ Higher quality of the vehicle when handed over to customer 	<ul style="list-style-type: none"> ■ Faster and dependable service process; from one week to one hour ■ Ability to actually experience the car inspection ■ Ability to interact with a sales persons while the service was being conducted

working hard since they always had something to do. They even had to work a lot of overtime.

The traditional system also involved problems in relation to a lack of information, unnecessary work, excessive inventory of parts, errors and mistakes, waiting time for facilities or equipment and low level of coordination and control. The inspection process was like a black box. Consequently, customers usually had to wait up to a week for their cars even if the actual inspection only took a few hours to complete.

The new process aimed to offer a car inspection performed at the car dealership while customers waited in the showroom for the service to be completed. The result of a long development process was a 45-minute inspection process.

A standardised process was developed in which the sequence and duration of every activity and task were fixed. All necessary tasks were identified and standardised. Standard scripts and charts were developed for every task and everyone was thoroughly trained and educated in order to master the new team approach. The knowledge and capabilities of each worker were measured in a competence matrix.

Instead of having one technician conducting the entire inspection, the new approach involved a team of one inspector and two technicians. Two technicians worked together on the car, with one responsible for the left-hand side and the other for the right-hand side, while the inspector controlled the progress of the whole process. A new layout was developed to eliminate

the need for movements within the inspection area.

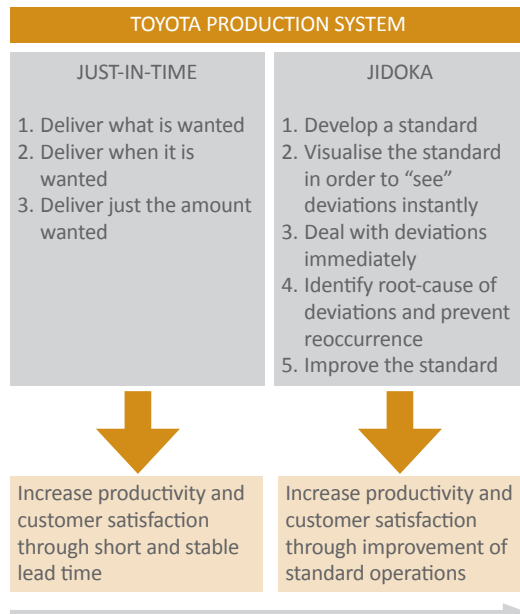
New specialised equipment was also developed in order to eliminate the most severe bottlenecks within the process. Various visualisation boards and sheets were also used, showing the current status of different activities and their outcomes.

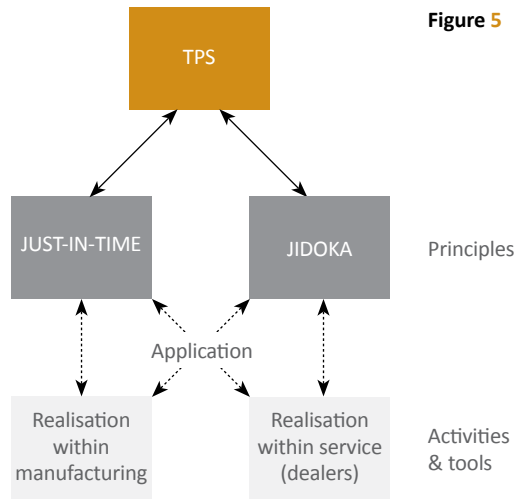
The standardisation and visualisation meant that everyone always knew what to do. It also allowed everyone involved to easily identify when things were not conducted in a timely or correct manner. Both standardisation and visualisation increased the level of control.

The new car inspection process had several benefits. From an operational perspective, the throughput time was much shorter. The number of parked cars at the shop decreased, as did the inventory level of parts. Since the length of the car inspection was fixed at 45 minutes, capacity planning of the whole workshop became much easier. The shop was able to achieve a good balance between utilising capacity and securing free capacity in order to retain its flexibility. This provided a more stable workload and less stress for technicians, and it also increased the manager's ability to control the operations.

From a customer perspective, the new approach offered a faster and much more dependable process that now took only 45 minutes, as opposed to approximately one week. It also offered customers the ability to actually see what was happening to the car while it was being inspected. The customer could receive accurate and instant information regarding the various activities and their outcomes. This also allowed sales staff to interact with customers and further develop their relationship with them. Flexibility also increased due to increased planning ability; customers were offered flexible pick-up times and flexible scheduling for the car inspections. They could plan for and cancel their car inspection with shorter notice.

Figure 4





OUTCOMES OF THE DEVELOPMENT OF TSL

There have been a number of positive effects from the development of TSL, as described previously. The operational changes had various effects, which are summarised in the figure 3. The processing of physical resources (cars, parts) could be conducted faster with higher dependability and information regarding the process could be accessed instantly. This allowed the personnel to offer fast and dependable services, in combination with a possibility to provide the customer with accurate and instant information regarding the various processes and their respective outcome. As a result, customers got what they wanted on time, in less time, which in turn led to faster settlement of payments. Another effect was a decrease in the number of cars being parked at the shop and in inventory levels of materials. The flexibility was also increased due to increased planning ability; customers were offered flexible pick-up time or flexible scheduling for the car inspections.

APPLYING TPS WITHIN CAR DEALERS

A key theme in all the various systems that TMC developed as part of TSL was how strongly these systems related to the core of the Toyota Production System. Basically, what the experienced manufacturing experts did was to apply their intimate knowledge of TPS to car dealership operations. Toyota does not make any adaption of TPS when using it within the service context: it is about developing operations with a strong customer focus.

According to TMC Japan, the Toyota Production System consists of two pillars: just-in-time and jidoka. The aim of just-in-time is to create a standardised

process delivering what the customer wants, when the customer wants it, and in the amount wanted; jidoka's is to pursue abnormal control of the process, which means to create an operational system that instantly identifies deviations from the standardised process. The deviations (abnormalities) are identified through visualisation and continuous control of the progress of the process. Once a deviation is recognised, the root of the cause is identified and proper countermeasures are undertaken in order to prevent reoccurrence.

Even if just-in-time and jidoka are defined and handled separately, they are interdependent and can be considered to be part of one dynamic system. The principles strive to realise two different sides of the same coin, namely the development of system normality (just-in-time) and the development of a system instantly identifying abnormality (jidoka), which in turn triggers the improvement (re-development) of the system normality. Together these two principles are the engine driving continuous improvement. TPS is illustrated in figure 4.

As described, TSL is in concrete terms a collection of activities and tools, such as kanban cards, stock control posts, pacemakers, work sequence list, progress visualisation boards, etc. These are specific for the car dealership operations. However, the activities and tools were developed through the application of TPS. More specifically, they were developed through the application of just-in-time and jidoka. Just-in-time was applied through the development of standardised processes offering what the customer wants (defect-free car), when it is wanted (on-time delivery) and how the customer wants it (continuous interaction and high-quality service). Jidoka, on the other hand, was applied through visualisation, making everyone able to pursue progress control and instantly identify deviations (delays or defects) within the process.

As described above, TSL is in concrete terms a collection of activities and tools, such as kanban cards, stock control posts, pacemakers, work sequence list, progress visualisation boards, etc. These are specific for the car dealership operations. However, the activities and tools were developed through the application of TPS. More specifically, they were developed through the application of just-in-time and jidoka. Just-in-time was applied through the development of standardised processes offering what the customer wants (defect-free car), when it is wanted (on-time delivery) and how the customer wants it (continuous interaction and high-quality service). Jidoka, on the other hand, was applied through visualisation, making everyone able to pursue progress control and instantly identify deviations (delays or defects) within the process.

Services and standards: stand off or stand up?

Sarah Lethbridge, senior research associate at Cardiff University's Lean Enterprise Research Centre, shares her idea of how important a role standards play in delivering a successful continuous improvement programme in services.

As a lean thinker the world can seem pretty confusing at times. It is our job to both study and learn from the past but also to challenge the now, so that we can improve the future. The two quotes above highlight the predicament that many of us face.

I highly respect the work of Steven Spear, H. Kent Bowen and John Seddon, who have all greatly contributed to my understanding of what it means for an organisation to pursue perfection, but who is right? And why must there be a fight?

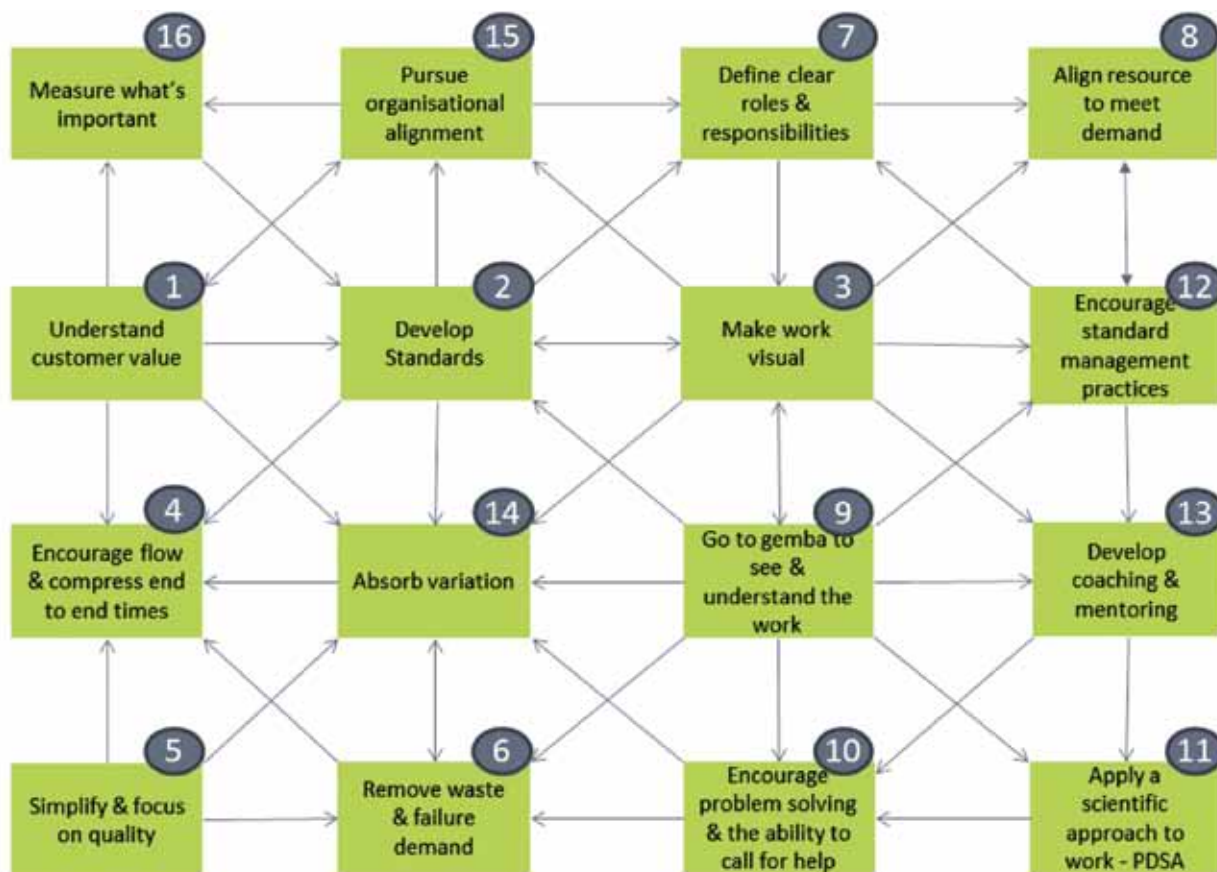
When I work with organisations, I try to help them to make sense of what it means to embrace a continuous improvement approach. Together, through teaching, we discuss what we consider to be the key elements of a lean enterprise and then we try to understand how the different elements interact with each other and mesh together to form a completely new, impressive and dynamic 'organisational compound'.

What inevitably happens as part of these discussions is the development of a spiderweb diagram. This map illustrates how all of the different elements feed each other, evolve from each other and coexist together. I consider the development of standards to be a critical ingredient within this web.

The diagram opposite is an attempt to 'tidy up' my thoughts in this area. It isn't perfect, it doesn't comprise all of the necessary elements needed within a lean enterprise, but it does help teams to see how many of the key concepts knit together. Arrows indicate some kind of relationship between the different elements. The relationship indicated could suggest that one activity needs to happen before its related entity can exist, or that that element will contribute to the success of its related element. So let's start to unravel the web, and to extract the role that standards play in the success of a continuous improvement approach.



“ To understand Toyota's success, you have to unravel the paradox – you have to see that the rigid specification is the very thing that makes the flexibility and creativity possible ”



Obviously, one of the most important focus points for lean is to understand customer value (1) and then to chase after this customer value. I have linked the customer value box directly to the development of standards (2). A standard to me is a kind of agreement between staff, the organisation and their customers about the quality of work that can be expected. Therefore, it makes sense that the standard should encapsulate what customers need, want and expect from the product or service.

But what should the standard look like? Well, that's why I've linked the standard box to the important principle of making work visual (3). The best standards are simple, clear and easy to understand (4). They shouldn't be overly complicated or prevent workers from being able to think. Especially in service.

John Seddon is right to criticise the development of overly specified standards which attempt to turn workers into robots. We have all experienced the pain of being on the receiving end of a call centre script or the inflexibility of a customer service interaction where your reasonable request is quashed by the 'it's company policy' line. What I think is key is to

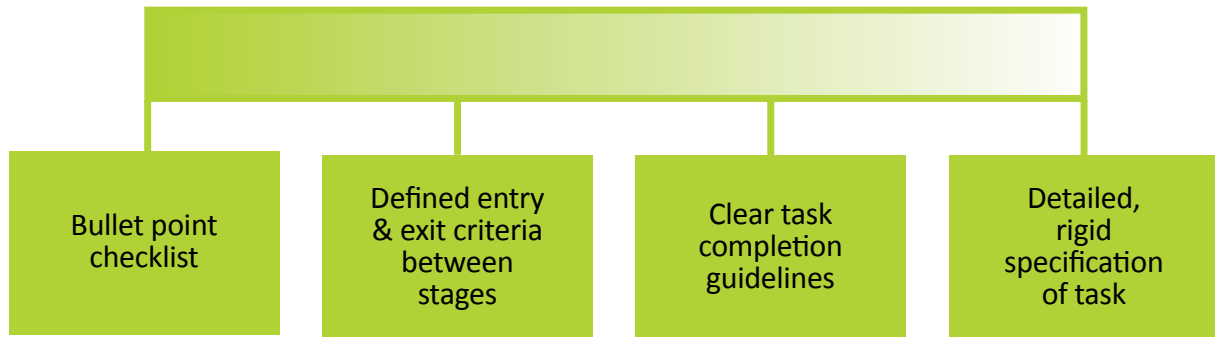
What I think is key is to understand the granularity of the standard that is required and that different situations will require a different degree of detail

understand the granularity of the standard that is required and that different situations will require a different degree of detail.

I see the granularity of standards as a kind of spectrum. Where one end of the spectrum is the rigid, detailed specification of minuscule tasks and the other end of the spectrum is just a kind of checklist, to ensure that some of the critical parts of a process have been achieved.

So what lies between the two ends of the spectrum? Well, learning about four fields mapping from Dimancescu has helped my understanding about how to flex standards to suit different situations. This project management technique involves agreeing 'entry and exit criteria' at each phase of the work activity in question. Work must not move from phase 1 to phase 2 unless all of the exit criteria have been achieved. Phase 2

Standardisation Spectrum



must not allow the work to ‘enter’ if it has not satisfied all of the essential requirements. These quality gates help to marshal the work safely through the process, in the shortest possible lead time (5).

I believe that using the idea of ‘entry and exit criteria’ as a type of standard can be hugely beneficial when helping to improve processes, particularly in services. Spear and Bowen taught us about how important clear and concise, unambiguous communication is between different sections of an organisation within their 4 Rules of the Toyota Production System and by collectively agreeing what work needs to look like as it moves from different departments, many errors and rework can be averted (6). I think that by developing a collective understanding of what is required by different teams, when it is wanted, helps to define clear roles and responsibilities (7) and can help to better align resource to meet changing demand profiles (8).

Of course, the development of standards goes wrong, regardless of the degree of granularity of standard that is pursued, when they are not truly developed by the people for the people. Standards must be developed where the work happens, at the gemba (9), in order to be relevant and useful. Therefore, it is also these people who will be able to decide the level of detail that is required within the standard (for instance, where the standard needs to fall on the standardisation spectrum). If the standards are developed for the people, by the people, they will also be much more likely to use the standard as a

basis for improvement, searching for new ways of working, thanks to the visibility and clarity that a well developed standard can provide.

The fact that standards provide the basis for problem solving (10) and provide organisations with the opportunity to apply a scientific approach to the world of work (11) is very well documented and discussed. When coupled with the guaranteed reflective time and space that standard management practices (12) provide, standards give leaders a fantastic opportunity to coach and mentor (13) their staff to reflect on their working practices with a view to improve them.

So if the standards that are developed are simple, active and helpful, they should be able to give employees the clarity and confidence to be able to do as Seddon discusses, to absorb variation (14). The best way to do it, I think, is to be sympathetic to the plight of the customer who has requested a service from you, or as Seddon advocates, to understand the purpose of why you are there. It is therefore critical for the organisation to be aligned to this understanding (15) and for the standards that are developed to be aligned to this mission.

A standard also provides a great opportunity for an organisation to be able to collect data about how the process is performing as it provides a kind of yardstick to measure against (16). For example, if we aim to deliver a response to a customer request within 24 hours, we can design key quality entry

and exit criteria as a type of standard for the process, and then monitor our effectiveness at being able to deliver to this standard. Note, this is not to advocate the use of targets, which we know can cause all sorts of perverse organisational behaviour, but to merely encourage the pursuit of perfection through an increased awareness of how the work is done.

All of these things can be achieved, as long as you don’t take the concept of developing standards to the nth degree if it’s not necessary, and that’s why understanding where the approach needs to sit on the standardisation spectrum is so important. I believe that both Seddon and Spear and Bowen are correct to some extent, but that what is required, as ever, is a very sensitive approach to the application of continuous improvement concepts in different environments, particularly within the world of service.

I believe that by better understanding how the different constituent elements of a lean enterprise knit together, change agents can better work with teams to flex the improvement approach needed in order to make a difference. Standards in service must be respected as one of the lean enterprise’s critical keystones however. It’s just essential to be able to adapt the granularity of that standard and to appreciate that a five-point checklist, if that’s all that’s required in order to increase quality, increase process visibility and therefore customer confidence, is an excellent contribution in terms of helping to achieve improvement.

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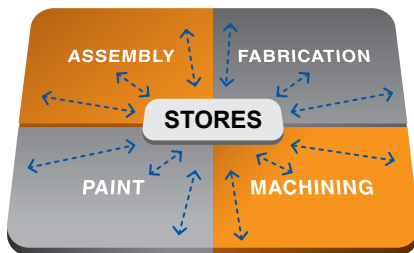
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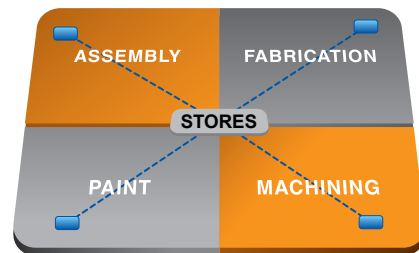
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Applying lean to services



Richard Bosworth, chairman of What If Forums, analyses the main differences in applying lean in a manufacturing site and a service environment, providing two case studies of companies that were successful in this endeavour.

With service industries historically falling behind manufacturing in key areas of operations and continuous improvement, it's heartening to witness a growing number of them harnessing lean principles to add value to the end user and reap wide-ranging benefits.

The origins of the lean philosophy, which puts the spotlight on improving quality, standardisation, reducing costs and boosting efficiency, are attributable to the pioneering Toyota Production System, which was instrumental in the car manufacturer becoming a driving force in the automotive industry.

It is important to stress that references to 'service' in this context are not limited to 'the office' or 'administration', but to wider service situations that are not necessarily repetitive and where cycle time is not applicable and task times may be both long and variable.

Service spans everything from hospitals, universities, consultancies, through to warehouses to field service maintenance. The importance of not confusing 'service operations' with the economic definition of service sectors (as distinct from manufacturing sectors) is paramount, since many 'service sector' organisations have manufacturing-like operations in that they produce regular outputs along value streams.

MANUFACTURING VS SERVICE

In the adage that one size does not fit all, lean and six sigma specialist and author Pete Abilla contrasts manufacturing and service businesses, advising against the “blind copying” of lean manufacturing tools across to services in the belief that they will be as effective.

Whereas there are consumption and production at different stages in manufacturing businesses, he says services industries entail simultaneous production and consumption (co-creation between producer and consumer).

Critical aspects are more tangible in manufacturing than they are in service. There is also some variation in manufacturing compared to considerable variability in service delivery.

Additional differences centre on product manufacturing having a ‘closed set in variety’ compared with an ‘open universe in variety of service cases’. Another difference is that manufacturing businesses bring mainly substantive product benefits compared with service businesses having substantive and peripheral benefits.

In my role as a business strategist facilitating peer forums for small and medium sized enterprises, I’ve seen the lean principles applied with beneficial outcomes across wide-ranging service industries including a structural engineering consultancy, an award-winning hotel and events venue, a vending machine supplier and a provider of pension provision.

In addition to Abilla’s contrasts, another key differentiator between lean services and lean manufacturing is the distinction between value demand and failure demand.

Management consultant Professor John Seddon has been particularly vociferous in highlighting how value demand is the demand for service from customers, while failure demand is the demand caused by a failure to do something right for the customer.

He stresses that failure demand is therefore demand that only exists because initial demand was not satisfied properly. For example, a large proportion of calls that call centres receive are either chasing down enquiries made earlier, or to correct earlier work that was not done properly. As one of the key aims of lean is to eliminate waste, failure demand represents an obvious type of waste that must be tackled.

REDEFINING THE SERVICE WASTES FOR LEAN

The original seven wastes of lean thinking were defined by Taiichi Ohno, the father of the Toyota Production System. These wastes, widely accepted as being activities that do not add value for the

customer, have often been redefined to better fit service organisations. Lean authors and specialists John Bicheno and Matthias Holweg re-defined them for service operations as below:

1. **Delay:** on the part of customers waiting for service, for delivery, in queues, for response, not arriving as promised. The customer’s time may seem free to the provider, but when customers take their custom and commissions elsewhere, the pain begins;
2. **Duplication:** having to re-enter data, repeat details on forms, copy information across, answer queries from several sources within the same organisation;
3. **Unnecessary movement:** queuing several times, lack of one-stop, poor ergonomics in the service encounter;
4. **Unclear communication** and the wastes of seeking clarification, confusion over product or service use, wasting time finding a location that may result in misuse or duplication;
5. **Incorrect inventory:** being out-of-stock, unable to get exactly what was required, substitute products or services;
6. **An opportunity lost to retain or win customers:** a failure to establish rapport, ignoring customers, unfriendliness, and rudeness;
7. **Errors in the service transaction:** product defects in the product-service bundle, lost or damaged goods.

IMPLEMENTING LEAN IN A SERVICE BUSINESS

Irrespective of the differences outlined above between manufacturing and service, both industries require discipline to implement lean effectively.

Personal experience has taught me that asking for volunteers to form a lean implementation team of five-seven people from different departments is a good start.

The next step is to teach the team the use of various lean tools and to adopt best practice in the truest sense of the phrase by visiting non-competing businesses that have implemented lean. Such companies who stimulate a culture of continuous improvement are invariably willing to share their learning’s with businesses that are hungry to learn and improve.

Next is looking at addressing as many visible waste problems as possible and seek to resolve downtime and other issues which cause instability.

Finally, there is selecting a pilot project to implement and run with it for up to three months before evaluating and reviewing activities and improvements as well as learning from mistakes. Roll out the pilot to other areas and continue to measure and evaluate progress while constantly encouraging feedback. It's also important to celebrate 'quick wins' and successes.

SAVOURING THE BENEFITS OF LEAN

In November 2012, Refreshment Systems, a UK-based vending machine supplier and family business which employs over 100 people, embarked on a lean journey to address several issues in the machine refurbishment department.

In my role as a business strategist facilitating peer forums for small and medium sized enterprises, I've seen the lean principles applied with beneficial outcomes across wide-ranging service industries //

Located in the company's Bradford headquarters, the department remanufactures an extensive variety of vending machines to give them an eco-friendly 'second life' before they are placed in companies spanning small and medium sized businesses, NHS Trusts and corporations such as Thomas Cook and Unilever.

Over the last 12 months, accelerated sales growth conversely brought a series of challenges as the department became a bottleneck which impacted detrimentally on the effectiveness of the supply chain.

With the spotlight being placed on increasing throughput, a project team comprising Refreshment Systems

managing director Alistair Balmforth, service manager Steve Wright and workshop supervisor Kevin Whittle conducted a comprehensive communications, processes and housekeeping audit - the latter including a 5S exercise in the 250 square metre department.

The team gave the area a spring makeover by injecting a minimal investment in reorganising the machinery and work flow with clearly demarcated areas as well as improving the lighting and the cleaning routines.

As a result, the department is back on track, the bottleneck has been eradicated and the area has a 'feel-good factor'. The benefits of the pilot project are being constantly assessed with the aim of rolling out the lean initiative across the entire business.

A CHALLENGE

Specsavers' corporate tax team in Guernsey commissioned a consultancy to improve their workflow and eliminate waste.

In a typical year, the team deals with approximately 1,300 tax files from stores across the UK. It takes around a day to work through each file and the number of files is classed as 'work in progress'.

More than 300 of these 'work in progress' files existed before the consultancy stepped in and the lead time

to process the files was over 50 days compared with a target of 18 days.

Aims and objectives of the lean exercise centred on removing waste, speeding up the lead time to process tax files, removing the backlog of files as well as minimising frustration that wasteful activities were creating in order to free up time to add value in other areas.

The project was also seeking to boost the levels of work satisfaction within the team.

The Specsavers team and the consultancy harnessed the four fields mapping tool utilised in traditional project planning to review the process in a way that was highly visible. This enabled the team to see significant areas of wasteful activity and to find the 'quick wins' where action could be taken to deliver immediate improvements.

Wasteful bottlenecks in the process, once visualised, were addressed and removed. The flow of the new leaner process was used to decide for a new office layout that would support, rather than work against, an efficient operation. Finally, new performance measures were set giving the team targets to work towards in improving their workflow.

The solution was to use visual management for the work stream, to identify and remove bottlenecks. All files that weren't being worked on would be set aside and reallocated in workflow order. 5S was applied to give the team a clearer understanding of where files were in the process. Finally, visual measures were implemented to manage future performance.

The project sparked many benefits, the first of which resulting in a leaner process with wasteful activities removed and enabling 16 files a week to be processed compared to 10.

The second 'win' brought a redesigned workspace that supported the smooth flow of files through the process with work in progress files reduced from 300 to 25. As a result of introducing a more visual process of managing files, lead time was reduced from more than 50 days to approximately 16 days.

An evolution of theory and tools



Erik Gillet, former global head of operational excellence for financial accounting at Credit Suisse, revisits the five principles of lean applied to services and explores whether the traditional lean wastes are relevant in a service environment.

Many try to lift the lean manufacturing implementation model and drop it into their service environment. Lean in services, however, requires a different approach as the conditions are very different compared to manufacturing. How can we get lean to be an even better fit outside of manufacturing, and what needs to be done differently?

Lean manufacturing tools don't always apply perfectly to services. Taiichi Ohno developed the "lean" philosophy and tools at Toyota. He was against documenting these principles. He feared Toyota would lose its competitive advantage, but he also believed that improvement is never-ending and codifying the principles would cause the tools to become crystallised.

Exhibit 1 - The Seven Types of Waste Applied to Services**Transportation: Any unnecessary movement of materials, products and/or information**

Using mail where e-mail could be used, papers circulating for signatures

Inventory: Anything of value which is being held up from moving forward in the process

Holding unnecessary materials in archives/shelves, e-mails waiting to be read

Motion: Any needless movement of people

Picking up a print out, handling paperwork, clearing away files on the desk, more clicks/keystrokes than needed

Waiting: Any delay between one process step and the next

Waiting for decisions/approvals, system downtime

Overproduction: Any output beyond what is needed for immediate use or customer demand

Working on the wrong thing at the wrong time, unnecessary paperwork

Over-processing: Any effort that does not add value from the customer's perspective

Redundancies (several people doing the same), creating reports that no one uses, over-collection of inputs

Defects: Any activity related to finding and fixing defects

Data entry errors, missing or inaccurate information, lost records, customer complaints

In the late 90s, lean thinking and tools started to spread outside of manufacturing environments, for instance in financial services and healthcare. Some 15 years later, however, lean theory has hardly advanced. On the contrary, we see practitioners sticking to the tools developed at Toyota and rigidly applying them to every process they work with. Not only is this what Ohno was trying to avoid, it is also like pushing a round peg into a square hole.

Services differ from manufactured goods in various ways. They are generally intangible products. Typically, the customer plays an active role in the service delivery process, and has a personal interaction with the service provider. Additionally, production and consumption of services often happens simultaneously. Service processes are different to manufacturing and consequently improvement tools should also be different.

The philosophy behind lean ascends above and beyond the tools that Toyota developed and used. Lean theory should not be a fixed set of tools, but we should use the philosophy to adapt and expand the toolkit, and to advance lean theory itself. New lean ideas and tools are being developed and leveraged in services.

REVISITING THE PRINCIPLES

Lean sees resources utilisation for anything else than value creation for the end customer as wasteful. Such wasted effort should be targeted for elimination. The goal is value creation, but as a consequence lean typically delivers increased process speed, increased capacity, reduced cost and improved quality.

Five principles form the foundation of lean thinking: specify value by product/family; identify all value stream for each product/family; make value flow uninterrupted; let the customer pull value from the producer; and pursue perfection. Although these principles appear generic, their original definitions are manufacturing oriented. Below are some comments to help broaden their applicability to both manufacturing and services.

1. SPECIFY VALUE FROM THE CUSTOMER'S PERSPECTIVE

Many lean efforts focus on efficiency, using technology to improve speed and reduce cost. However, the real competitive edge is value creation. Value should be defined from the (end) customer's perspective. There are three commonly used categories regarding value:

“ In the late 90s, lean thinking and tools started to spread outside of manufacturing environments, for instance in financial services and healthcare. Some 15 years later, however, lean theory has hardly advanced ”

- Value added (VA) indicates steps the customer sees as essential: (1) they add form or function, (2) the customer cares (“would pay for it”), and (3) they are done right first time and avoid waste;
- Value enabling (VE) refers to steps that either allow value-added tasks to be done better and faster, or are needed to meet legal, fiscal or regulatory requirements;
- Non-value added (NVA), which is anything not included in the two categories above.

To facilitate discussion around value, this equation can be helpful: $Customer\ Value = (Quality \times Utility \times Availability) / Price$. Processes/activities that do not add to these variables are NVA.

2. IDENTIFY AND UNDERSTAND THE VALUE STREAM

A value stream is the set of activities across all parts of the organisation to deliver a product or service. In other words, the end-to-end process delivering value to the customer. Value stream mapping is very powerful to visualise both the production/processing flow and the information flow. This helps to identify waste and its sources. It also creates a common understanding for discussing the current processes and how to improve these.

3. CREATE FLOW BY ELIMINATING WASTE

Eliminating waste makes the product or service “flow” to the customer without any interruption,

detour or waiting. Typically NVA activities drive over 80% of time spent in services (waiting time being the most common waste), with VA being less than 10%.

4. RESPOND TO CUSTOMER PULL

The initial thought behind customer pull was to not produce anything unless the customer asks for it. In practice, however, pull typically focuses on applying just-in-time tools (Kanban cards/ systems). Pull could also be interpreted as understanding customer expectations and demand, and organising process to deliver what the customer wants, how the customer wants it, when the customer wants it.

5. PURSUE PERFECTION

The prior four principles are not stand-alone. They serve to help reach the theoretical concept of perfect value and zero waste, but this actually means that continuous improvement never stops.

OLD AND NEW WASTES

Lean fosters a continuous improvement mindset through three core elements: standardised work, sequencing of process activities, and adding value. Their opposites need to be eliminated, in Japanese: mura (unevenness), muri (overburden) and muda (waste). Yet much of the focus in practice and theory has been on eliminating waste.

Identifying waste is probably the most common application of lean. Originally, seven types of waste were used at Toyota, with several acronyms developed for them (like SWIM TOO, TIM WOOD). These are all iterations of the same

“Lean theory should not be a fixed set of tools, but we should use the philosophy to adapt and expand the toolkit, and to advance lean theory itself” //

Exhibit 2 - Reducing waste in services - breaking organisational silos

One bank realised that its back-office organisation was functionally siloed and that a stronger internal client focus was needed. To overcome the silos, they implemented "Collaboration Agreements (CAs)".

Senior managers were asked to identify their key internal customers. Consequently these internal counter-parties were approached to jointly develop a Collaboration Agreement. Essentially the deliverable was a formal contract between these internal parties. Both parties had to work through a set of topics together: What are our roles & responsibilities? What are your and our requirements? How do we measure these? How well do we perform today? How often shall we review our performance?

Although the expectation was a formal document signed by a senior manager on both sides, the amazing observation was that the formal contract actually did not matter at all. It was the dialogue that made the teams realise they had an internal client (often information flows back and forth between teams, making then each other's client as well as supplier). This bank saw impressive results using this tool: it reduced unnecessary work and improved employee morale, and service delivery performance.

The same bank later introduced "QUICK workshops" (an acronym for QQuality Improvements, Collaboration and Knowledge sharing). QUICK workshops were seen as the logical next step to CAs. Where CAs improved the hand-offs between two teams, QUICK allowed to review and improve processes across three or more teams.

Senior managers had to identify critical processes with service quality concerns related to process hand-offs. With the help of the senior sponsor, the functions involved were asked to participate in a facilitated workshop to improve the critical process they perform.

The workshop would start with chronologically walking the process together. With simple questions (What do you need? What do you get? What do you need it for? How good is what you get? What do you do with it?) people started to understand the downstream needs and challenges. This reduced all kinds of non-value added activities, without large investments or additional people required.

elements: transportation, inventory, motion, waiting, overproduction, over-processing (also NVA processing), defects (also scrap). The types of waste were designed with manufacturing processes in mind. As illustrated in Exhibit 1, they can be applied, sometimes forcedly, to services too.

It's interesting to note that mura and muri are often causes for downstream waste. The typical example is sales pulling in orders at the quarter end to meet targets. These orders need to be fulfilled to make the financial numbers, but they overburden the production process and result in waste. Similarly, a process with little standardisation (e.g. unclear instructions or manual activities) could overburden downstream processes as well.

Sometimes an eighth waste is added, relating to the under-utilisation of employees' abilities (resulting in additional acronyms, like DOWNTIME). The idea is that employees should do meaningful work and add value. Toyota did not list this waste, but reportedly has never laid off people following lean improvements; employees were given new roles instead.

In the spring of 2011, Majdi Almah, general manager at BFG International China, started a discussion on the social platform LinkedIn, asking: "*Besides the traditional 8 wastes: Transport, Inventory, Motion, Waiting, Over-Processing, Over-Production, Defects, and Skills... What do you think will be the 9th waste?*"

He received over 1,600 responses and grouped these

in 245 categories. The top five were inefficient communication, complexity and bureaucracy, politics, resistance to change, and unproductive meetings. However, many lean purists argued that the seven original types of waste not only cover everything needed in manufacturing, but are all that is needed in services too: anything additional, they argued, would make things more complex. In other words, the seven types of waste are not only mutually exclusive, but also commonly exhaustive.

It can be argued that not all the top five results are new types of waste, but there is an interesting element to the outcome of this discussion. Apparently, there are types of wasteful activities that have evolved over time, while others (like change resistance and politics) are performed deliberately and covertly. They are harder to spot and to address.

ADDITIONAL WASTE: UNINTENTIONAL INCONSISTENCIES

Service delivery processes differ from manufacturing processes. This makes waste in services generally less visible. In addition, service providers tend to have unintended service delivery inconsistencies. These inconsistencies are so particular for services that they should be seen as an additional type of waste. They stem from the characteristics of services, but also from the much stronger human element in the way services are organised and delivered.

Differentiation of service delivery is not necessarily bad. Think about an organisation offering "Platinum" service to its best customers. When we see resource utilisation for anything else than customer value creation as a waste, then unintended variation in service delivery must be a waste too. Variation in either the service delivery process or outcome implies differences in the amount of value added in the absence of an intention, which cannot be the most efficient way to deliver the service.

I see three main causes for inconsistent service delivery: lack of standardisation, unnecessary complexity and redundancies, and sub-optimisation.

ROOT CAUSE #1: LACK OF STANDARDISATION

Service processes are sometimes less rigidly sequenced and less standardised compared to a manufacturing production process. A lot of waste in services is caused through poor (or lack of) standard work. Activities are done inconsistently, in varying sequencing, or employees improvise because there is no process. As a consequence, service quality will show variation.

Most service processes are repetitive in nature and therefore standardisation helps the organisation to deliver well and consistently. Standard processes can allow for customisation too, but some creativity is needed to come up with configurable and reusable solutions. I often use the term “structured flexibility” in this context. A good illustration of this is mobile phone plans. Subscribers choose the plan that best fits their needs, which gives the telecom provider the ability to standardise its offerings and delivery processes.

Several authors argue that lack of standardisation is a source of competitive advantage (for example through customisation). According to this view, standardisation would diminish the ability to absorb the variety of customer demands. However, it should not be perceived as hindering the ability to absorb variety in customer demand, but rather helping to manage it. Moreover, it actually helps to ensure that the organisation can consistently deliver what is expected. Its absence, resulting in customer dissatisfaction or rework, doesn't add value.

ROOT CAUSE #2: UNNECESSARY COMPLEXITY AND REDUNDANCIES

It is not uncommon for large organisations to solve a problem with a quick fix, or adding a system or data warehouse. Besides not addressing the underlying root causes, the repeated use of these shortcuts creates redundancies and unnecessary complexity. Complexity also comes from process hand-offs and controls. In essence, every hand-off and every decision point in a process adds complexity. This means additional time and effort will be needed, creating opportunities for inconsistencies.

Examples of unnecessary complexity and/or redundancies in services are: duplication of IT systems and data warehouses (with decentralised maintenance); having more than one financial ledger; and multiple forms used for the same process. The generic solution to complexity is simplification: removing complexities, for example implementing a single standard or “version of truth” (for data). If complexity cannot be eliminated right away, find the underlying causes and eliminate/improve these.

ROOT CAUSE #3: SUB-OPTIMISATION

Managers typically have functional targets. The larger the organisation, the more likely it is that targets are not aligned and that managers sub-optimize. Typical outcomes of this are poor collaboration across functions (silos), lack of knowledge on activities performed, and possible deviation from achieving overall company goals.

This can also result in institutionalised rework, which may be difficult to recognise. I have seen processes where different departments used different checklists at different stages, therefore not capturing rejects early enough and putting in a lot of effort working on the wrong thing. The generic solution for sub-optimisation is a better alignment of metrics. Ideally this is achieved through a rigorous focus on customer needs.

“Variation in either the service delivery process or outcome implies differences in the amount of value added in the absence of an intention, which cannot be the most efficient way to deliver the service”

EXPANDING THE TOOLSET

I would like to share some tools that I did not learn as part of my lean training, but that I have either borrowed or developed as part of improvement initiatives.

■ Voice of the customer

It is not uncommon to hear managers state they know (read: assume) what customers want. An even bigger problem that I have observed is that people in back-office functions don't even realise they have (internal) customers; not to mention how well they deliver.

A critical element in the six sigma toolkit is capturing the voice of the customer as a starting point for any improvement initiative. Lean practitioners should more explicitly embrace this practice, to better understand value from the customer's perspective.

■ Task analysis sheets

Waste in services is not always visible or easily identified. Mapping tools (for example value stream mapping, swim-lane process maps, and spaghetti plots) will help, but do not necessarily provide insights in all the activities performed.

When employees support several service processes, creating an overview of performed tasks helps to visualise and discuss the necessity of all tasks performed. A similar approach can be applied to reduce unnecessary documents.

Task analysis sheets and VA/NVA assessments will identify hidden waste.

■ Collaboration agreements

Many large companies suffer from functional silos that hinder process transparency and efficiency. Process tasks are performed, often without knowing the specific requirements from the internal service recipient.

Collaboration agreements are formal documents that specify quality performance standards between functions. The word "collaboration" instead of "service" is chosen intentionally. In many service processes information flows back and forth between teams. This choice of words allows for more open discussion, without one side acting as the customer and presenting demands to the supplier, and doing so not feeling a need to improve their own way of working too.

Collaboration agreements reconnect processes with (and between) internal customers.

■ QUICK workshops

When functional silos exist it is probable that process tasks are performed across functions, but people performing them don't have visibility on how their work is used in the downstream process.

QUICK workshops (an acronym for Quality Improvements, Collaboration and Knowledge sharing) are essentially an evolved form of kaizens. They are workshops with at least three functions performing subsequent steps in a service delivery process. They are a logical next step from collaboration agreements; instead of bi-lateral discussions on service requirements and performance, the focus is a more expanded process view.

QUICK workshops translate customer requirements through the organisation, clarify internal hand-off requirements and reduce NVA activities.

■ The 3-step simplification principles

Every hand-off and every decision point in a process adds complexity. The more steps and effort in a process, the more opportunities for process breakdowns.

When Apple developed its first iPod, Steve Jobs got personally involved. He wanted to simplify and would apply the same test repeatedly: if he wanted a song or a function, he should be able to get there in three (intuitive) clicks. To apply this design principle to user interfaces (including websites) helps developers create an intuitive, user-friendly experience. A similar logic, applied to process hand-offs, also improves customers' experience.

Reducing hand-offs and duplicate controls will result in less mistakes and more speed.

TO CONCLUDE

Lean thinking is all about value creation and aiming for perfection. It is not about rigorously applying the manufacturing tools and techniques that were once documented at Toyota. The lean philosophy remains unchanged, but as its application broadens it is only logical that the theory and tools around process improvement evolve accordingly.

Bringing order to chaos

Drew Locher is managing director of Change Management Associates in Mount Laurel, New Jersey, and a Shingo Prize-winning author. In this article, he talks about the importance of standardisation in an office environment.

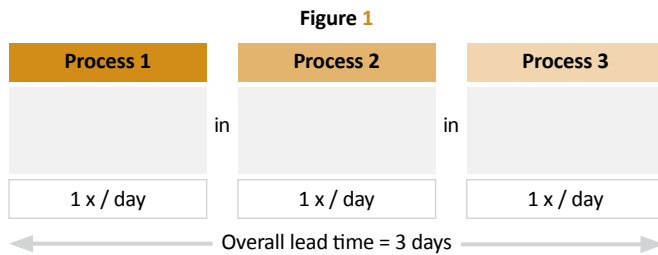


“The office is different.” “Nothing is the same.” “Every day is different.” “Demand is unpredictable.” These statements are variations of the same theme when it comes to the ever-changing work environment often found in offices and service providers, the nature of which is often used to explain why “lean doesn’t apply”. After all, how can standard work, a fundamental concept in lean, apply to such an environment? Truth is, in fact, that these situations scream for the application of lean and operational excellence concepts more than others. To begin with, the proper application of standard work will result in less variation. Standard work is not about having all customers submit orders in the same way (phone, facsimile, or internet). It is about processing them in a consistent way for each medium.

Standard work is one way to address the root causes of variability in an office and service environment. Numerous other lean techniques can be used as ‘countermeasures’ to variability and the waste that it creates. This article will focus on one concept that can bring order to the typical chaos found, what we call “a plan for every process”. First, let’s look at a key aspect of the aforementioned variability.

THE CURRENT CONDITION

It is often left up to the individual working in an office to determine when a particular activity will be performed. During a value stream mapping event of a business process the question “How do you prioritise your work?” is asked at each step or hand-off. This question is of particular importance in the multi-tasking environment that most offices present. The common responses are telling: “When I get to it.” “When someone screams for it.” “Whatever my boss tells me.” These responses are indicative of poorly defined planning and coordination between steps, functions or departments in the value stream.



In a manufacturing environment, the needed planning and coordination is provided in some form of schedule. Most commonly a schedule is created daily or weekly that defines what should be produced and when, or at least by when. Clear expectations are established.

A schedule provides some element of certainty to any work environment. Now, it may be the case that the schedule is not always met, but therein is an important benefit of any form of schedule. It provides awareness of when things did not occur as planned. Identifying 'non-standard' conditions such as not meeting schedule is an important concept of lean thinking.

Where is the 'schedule' for the various activities performed in the office? Interestingly, one typically can be found in the finance and accounting department of most companies. A financial calendar is established that clearly identifies when particular activities are performed. The schedule often supports the month-end closing process that most companies dutifully perform to generate monthly financial reports and related metrics that give the organisation an indication of performance for the period. Over time, other departments learn to schedule their activities that relate to the month-end process that typically involves nearly every department.

However, most other activities performed in the office are not scheduled in any consistent way. A person will perform these activities as previously described ("when I get to it," for example). Sometimes he or she will perform a task on Mondays, other times on Wednesdays. Sometimes he or she will perform a task daily. Other times several days may elapse before he or she "gets to it". From the perspective of the recipient of the output from a person, function or department, it appears to be very unpredictable from a timing standpoint as well as the volume of work.

For example, sometimes they receive no orders, other days five, still other times they receive 10. The recipient believes that the volume of orders varies significantly on a day-to-day basis (zero to 10). The fact of the matter is that the volume is fairly consistent. It is the manner by which orders are processed by the previous person (daily versus every other day). Think about the different activities performed in an office. Which display significant 'swings' in volume? Is it 'real' or is it 'artificially' created by practices employed at a point or points in the value stream?

What would be the benefit of achieving greater predictability in the work environment? What if a more 'level' flow of work can be achieved? Can we really create a plan for every process? What about unplanned work? Surely you cannot schedule and plan for everything. We have learned that to affect any change in current

practices, people must be properly motivated. In other words, they must see the need to change and the benefit in doing so. Therefore, we'll start with a discussion of the potential benefits.

BENEFITS OF PLANNING FOR EVERY PROCESS (PFEP)

We always listen to the complaints of people. What makes them frustrated and stressed. Commonly it is the unpredictability of the day. The vast majority of humans want a sense of certainty, a lack of which creates discomfort and stress. I am often told, "I come to work with a positive attitude each day. By 10am, all heck breaks loose and my positive attitude is quickly lost." Time and time again I hear variations of this same sentiment. Therefore, the primary benefit of creating a "plan for every process" is to reduce frustration and stress. People will feel that they have better control over their work environment rather than the work environment negatively impacting them.

There are other benefits as well, particularly from a customer perspective. If the timing of activities is such that the overall time through a process is more predictable, this should result in improved customer service, and with less 'rushing' towards the end (and therefore less stress). Commonly when activities are not adequately planned, less time is provided for those activities towards the end of the process. Everything seems like a rush in such situations, and in reality it is. With better flow and less 'rushing' comes improved quality and the time saved associated with 'rework' of many forms. So there is a possible benefit of improved efficiency as well.

HOW TO DEVELOP A PFEP

Now that we have made the case for better planning and coordinating of activities, the discussion can turn to how to accomplish it. The 'Plan for Every Process' technique is to establish routine where there is little or none. It is compatible with the standard work concept. With all standard work, activities

are identified as well as the steps in the desired sequence. The time it takes to perform the activity and the steps required are also included, as well as the key points - descriptions of how to perform the step in order to meet quality, efficiency and even safety requirements. The Plan for Every Process adds to this the 'timing' of the activities and/or the steps. It is particularly helpful with the multi-tasking nature of roles in office and service environments, and is created for each particular role.

Timing is often what is required to meet overall objectives of the value stream, also called "service levels". Therefore, the Plan for Every Process for one role must be developed with consideration of other roles for those activities that are part of larger process, system or value stream. For example, let's say that the overall desired lead time or "service level" for a process is three days, and the process consists of three steps completed by three different people, functions or departments. Then each step must be completed once per day in order to meet the overall objective of three days. This is demonstrated in Figure 1.

The particular time during the day may or may not be important. Even if it is not, it is desirable to establish timing when possible. Some organisations have chosen to identify two general categories of activities: those that require specific timing and those that do not. For those that do not timing for the entire group of activities is identified, but without the specifics for each activity within. This is certainly acceptable.

The format for the Plan for Every Process can vary. It mainly depends on whether the PFEP is just part of standard work which would include time and key points. Here's two examples: the first one is the most basic. It is a list of activities through the day and for a week. This can be easily expanded to include monthly activities. A closer examination of Example 1 reveals how non-repetitive activities can be accommodated in a PFEP. Note that from 10.30 to 11 'unscheduled work' is to be performed. Any unplanned,

Example 1

Plan for Every Process		
Role: Customer Service		
Timing	Monday	Tuesday
9 – 9:00 a.m.	Check emails	Check emails
9:30 – 10:00 a.m.	Enter orders	Enter orders
10 – 10:30 a.m.		
10:30 – 11:00 a.m.	Unscheduled work	Unscheduled work
11 – 11:30 a.m.	Enter return merchandise authorisation forms	Process holds

'drop-in' work can be completed at this time, whatever it is. This prevents such work from negatively affecting the more standard, more repetitive activities.

The second example includes the time required to complete the activity and key points, thus making it more like standard work in the classic sense. It utilises a different format, but achieves the same result. Therefore format is not what is most important. We often encourage people to try different formats to see what works best for them, and it can vary based on the nature of the role. It should be noted how Example 2 displays weekly and monthly activities in a simple manner.

Example 2

Plan for Every Process				
Role: Customer Service				
		Timing		
Activity (with key points)	Time	Daily	Weekly	Monthly
1. Enter orders within day of receipt to insure that published lead times can be met	5-10 mins per order	Throughout day		
2. Generate weekly order input reports to monitor current demand	5 mins		Fridays by 3:00 PM	
3. Generate monthly reports for management to monitor sales performance	10 mins			Last Friday of month

The question that should be asked is not whether we can create a 'plan for every process' but how quickly we can, and start to realise the important benefits of doing so. It must be noted that most often changes to the initial PFEP will be required as better coordination between functions and departments is achieved, and overall performance of key activities is stabilised and even improved.

The PFEP has proven to be effective in bringing much needed order to many an office and service workplace. Start working on yours.

A value creating paradigm



Dr. Ahmed Al-Ashaab, LeanPPD technical coordinator, Manufacturing and Materials Department, Cranfield University, shares with LMJ readers the research he is conducting on lean product development.

The increased international competition in the current open global market is putting pressure on companies to improve the performance of their product development. This is to sustain and improve market share through the production of a high quality product in a cost effective manner in shorter time.

Organisational survival and long-term growth depend on the introduction and development of new products. Manufacturing companies are in need of a new model that goes beyond lean manufacturing to ensure the transformation of the enterprise into a lean environment. This is a response to customers and market demands of value creation, incorporating sustainability and customisation.

I believe that significant change in enterprise performance can come from the adoption of lean thinking throughout the entire product life cycle. Lean Product and Process Development (LeanPPD) is a 4-year project sponsored by the EU-PF7. The LeanPPD consortium has five industrial partners - Rolls-Royce plc, Visteon Engineering Services-UK, VW-Germany, Sitech-Poland and Indesit-Italy - plus other six European universities and research centres.

Lean concepts were derived initially from the Toyota Production System, one of its main lessons being to produce what is needed, when it is needed, in the time that is needed, with the minimum amount of resource and space. The whole objective of lean is the elimination of waste: this is good to achieve, but an isolated success within a manufacturing company is not sufficient.

What is needed is a new paradigm that will take the lean manufacturing and lean thinking concepts from waste elimination into value creation. In order to make a significant change in enterprise performance and saving ultimate system costs, there is a need for the entire enterprise to undergo a lean transformation. Lean design is going to be an important part of this lean transformation, as up to 80% of the manufacturing cost is determined in the design stage. It is important to note that a complex design product cannot easily be “leaned out” during production. Hence the production of affordable and sustainable products would require an effective lean design and engineering.

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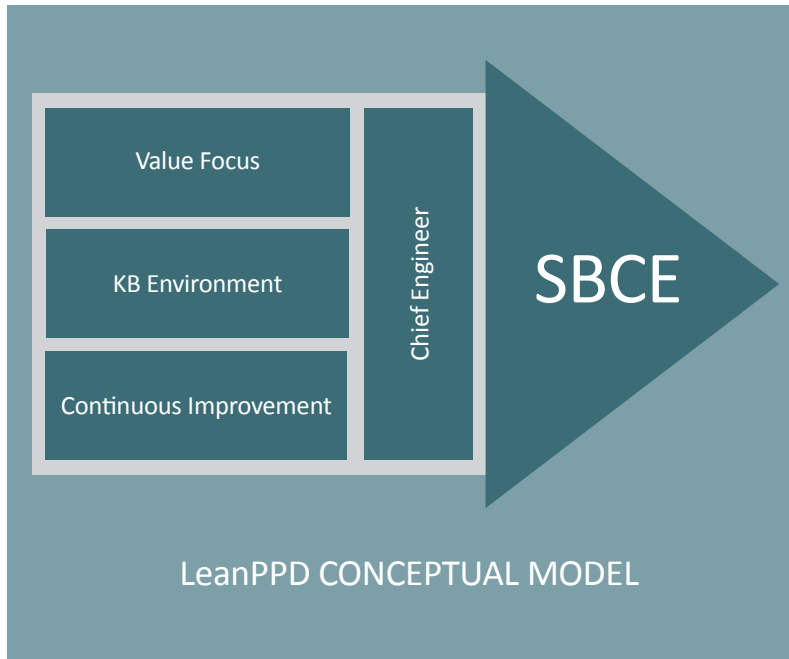


Figure 1: LeanPPD Conceptual Model

In order to create a product development model that is fit to consistently perform in a rapidly changing market and environment, a changeless core is required. LeanPPD research found that the focus should be on value creation, provision of knowledge environment, continuous improvement and process that encourage innovation and collaboration. Figure 1 illustrates the LeanPPD Conceptual Model. The aim of the project is to develop a new model and its associate tools based on lean thinking that will consider the entire product life cycle, providing knowledge based user centric design and development environment to support value creation to the customers in terms of innovation and customisation, quality as well as sustainable and affordable products.

The LeanPPD Project has been developing several enablers, namely: set-based concurrent engineering, lean assessment tool, product development value mapping tool, lean knowledge life cycle, a new A3 thinking for design problem-solving and lean design guidelines. These enablers are the building block of the model and are being tested using several industrial case studies. A short description of the

enablers that we have developed at Cranfield University follows.

Set-based concurrent engineering: Design participants practice SBCE by reasoning, developing, and communicating about sets of solutions in parallel. As the design progresses, they gradually narrow their respective sets of solutions based on the knowledge gained and they commit to staying within the sets so that others can rely on their communication. SBCE is the core enabler of the LeanPPD model and it has been developed based on the following key principles: strategic value research and alignment; map the design space; create and explore multiple concepts in parallel; integrate by intersection; and establish feasibility before commitment.

Lean knowledge life cycle: It is a methodology which enables companies to systematically capture, re-use and create knowledge in product development. It consist of seven stages: knowledge identifications; previous project and domain knowledge capture; knowledge representation; knowledge sharing; KBE; knowledge provision and use; and dynamic knowledge capturing.

Each stage entails several tasks that are necessary to carry on the work.

A3 thinking approach: It is a product design problem-solving approach. The research has designed a new A3 template (called A3LAMDADA) to support knowledge-driven design gathered from the integrated actions of visualising, solving, learning, reflecting and creating. This is to support the generation of lean design.

Lean design guidelines: These ensure the successful realisation of customer value, which is maximised, as well as ensuring that the product is manufacturable in a cost effective manner where harm is eliminated during production and that manufacturing waste is minimised during production as well as minimising resource consumption during production and operation.

The LeanPPD research team at Cranfield University has been engaging with several companies in action research to ensure an industry-driven approach to the project as well as to test the enablers using industrial pilot projects. At Rolls-Royce, SBCE is being used to enhance the company's existing product development process and a case study for the development of helicopter engine is being used to test the process. At Visteon, the LeanKLC and the new A3 thinking approach have been used to solve design problems of EMC (electro magnetic compatibility) as well as to create the EMC knowledge. A EMC knowledge-based demo has been developed and a different way for its provision has been considered in the form of a smart checklist. The principles of lean design have been used to support the development of an oil/water separator which resulted into a new design with about 40% less manufacturing cost.

We realise that more research is needed and more industrial interactions are required. Therefore Cranfield University is organising Industrial LeanPPD Workshops with the objective to showcase the state-of-the-art methods and tools based on action research. This has been a very good mechanism to disseminate the LeanPPD project results as well as gaining the industrial interest for further collaboration.

Innovation: take the time, make the effort



Craig L. Squires, a certified value specialist and president of SAVE International, explains why companies can't afford not to use value engineering if they are to innovate.

In today's global market, the companies that not only find ways to make the best use of limited resources, but also find ways to deal effectively with the demands and pressures of an ever-increasing pace of change will have the best chance to succeed.

Value engineering (VE) is a powerful tool and methodology that embraces and drives creative thinking. The long list of organisations that use it as a key component of their innovation strategies might be very surprising, especially considering the level of sophistication and the number of users outside the United States, the country where the concept of VE was conceived.

An integral aspect of VE is the concept of function, which focuses on understanding "what something must do" before developing alternatives for "how to do it". Value engineering can be defined as an organised effort to improve value by analysing and evaluating the functions and essential characteristics of a system, product, process, project, etc. in order to achieve its necessary and supporting functions in the most efficient and profitable manner. It also helps people understand how to optimise the use of resources such as time, money and people to improve overall results and outcomes.

Business leaders are always looking for a competitive edge and for ways to improve their profits and shareholder value. Innovation and process excellence are today's buzzwords that catch attention and attract crowds. Walk into a room of project managers and mention six sigma, lean, and even relative newcomer agile and chances are most will know how each can be used as a tool for improvement. However, if you ask ten people who know of value engineering to say what it is, when to use it and how to use it, chances are you will get ten different answers.

Some people think VE is purely a cost reduction exercise that often takes place late in a project in order to stay in budget or cut expenses. Others see it as limited to certain types of industries or applications. Those who understand its true capability

to improve quality and drive innovation are positioned to reap the full benefits in their businesses and projects.

The purpose of this article is to provide an overview of VE to help understand why it is so powerful, flexible and adaptable including brief explanations of when, why and how to use it.

WHAT VE CAN DO

VE involves team-centric activities and phases that are designed to understand first and foremost what the customer values and is willing to pay for in order to target strategic areas for improvement and innovation. With regards to manufactured goods, customers value what products can do and generally (other than quality issues) not how all the parts and pieces fit together to make the final product. As long as the same function is delivered by a product without compromising quality or other key factors important to the customer, the parts and pieces that made the product work can be analysed and delivered in new and creative ways.

The phases of the value methodology are designed to help to assess the current business situation, identify and develop strategic alternatives, judge the viability of each alternative, select an approach and then take decisive action. This approach helps teams consider how to design and deliver a product, project, process or service to satisfy the customer's needs in proportion to the relative importance the customer gives them. And, to look for opportunities to combine, reduce or eliminate functions that the customer does not value or want.

The best way to get value from VE is to use it in the very early stages of a project when the target concept is understood but decisions on how to proceed have not been made yet, except at a high conceptual level. This allows enough time and flexibility for valuable ideas that come up during the creativity phase of VE to be incorporated into the project. If VE is conducted later in the project when options have already been defined and incorporated into the design or plan, it may be too late to use great ideas for value improvement. And, if ideas are

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used, it is likely to cost more time and money to go back and rework some of the plans.

Cost reduction is often emphasised by business leaders and managers, especially during times of economic stress. However, even under normal market conditions, reducing cost may be set as a very high or top priority. When low or reduced cost is emphasised as the primary business objective, it is often in order to achieve some other business outcome such as to overcome competition, to improve profit margin and/or to increase market share. If one views cost reduction as a way to achieve these kinds of business objectives, then other valuable solutions to the real problem or opportunity at hand might not be considered by those working on the strategic options.

Therefore, rather than accepting cost reduction as the sole focus, VE leaders will work to ascertain the higher-level business objectives and put cost in the right context for overall value improvement. Doing so up front creates a more holistic focus for the team to innovate with new ideas and related profit potential and ROI for the product, project, process or service that supports the business objectives. With this mindset, teams may find that improving function performance while maintaining or even increasing cost can generate the optimum value impact.

As an example to illustrate the power of first understanding what drives revenue for any business (the customer!), consider the market for wristwatches. Customers are able to choose from a wide range of styles and prices in this market segment, but all the products must perform the same basic function: indicate time.

For a customer considering a luxury watch such as a Rolex, the decision likely involves quality and esteem more than utility. For a customer with limited finances shopping for a commodity brand, the focus is likely more based on utility. The parts and pieces along with the market value of the two watches are very different but each shares the basic function of "indicate time" that is the primary purpose of the product type. If either did not perform the basic function, the value to the customer would be substantially diminished or lost completely. In function thinking, the "what it must do" is indicating time, but the "how" aspects involving the parts and pieces supporting the basic function are very different. If the makers of Rolex concerned themselves purely with reducing cost in order to deliver value, the brand would be diminished. For brands competing at the low price end of the market, reducing cost could be a major aspect of product design and development. The value engineering methodology helps to develop understanding of what aspects of value to target in order to develop the right strategic business approach to the market.

THE ORIGINS

This function-based thinking was a major breakthrough that occurred many years ago when the world was filled with very different technologies and products. It doesn't happen often, but every now and again something new comes along that has a ripple effect around the world and changes not only the way people think, but also the competitive landscape. Those that learn and adapt become stronger, those that don't fall behind in a Darwinian battle of the fittest. As with many significant intellectual breakthroughs in history, great human need spurred great personal invention by a person looking for an effective way to deal with challenge.

“An integral aspect of VE is the concept of function, which focuses on understanding “what something must do” before developing alternatives for “how to do it””

In 1947, at General Electric, this shift to a new paradigm in strategic thinking involving function began based on an elegantly simple (yet conceptually complex) methodology. In the years following World War II, GE and other large manufacturers were facing severe shortages of many types of raw materials due to the great amounts that had been consumed in the war. Faced with this and other challenges related to product costs, Lawrence D. Miles made a conceptual breakthrough when he realised that people buy products for what they do, and not how they do it. Since the basic function defined the reason for the product's existence, the way supporting functions helped to make the basic function possible represented a great opportunity for value improvement.

More importantly, it was discovered that the basic function usually makes up a relatively small portion of the total cost compared to the supporting functions. This understanding opened up a myriad of possibilities for delivering the supporting functions with different parts, processes, materials and so on that result in substantial cost savings while still preserving quality and performance.

Mr. Miles changed the question from a process-oriented way of thinking of “How does it do it?” to a function-oriented way of understanding “What must it do?” because customers ultimately pay for what things do and not how they do it. Process thinking can be described as “how things work together to achieve a result”. And, function thinking can be described as “what a product must do to deliver value”.

With this new understanding, Miles began to evaluate the functions of GE's products and worked to understand and define those functions in order to improve the performance and quality while simultaneously reducing the product cost. He soon realised that “all cost is for function” and came up with the following formula to describe the conceptual basis of his thinking:

$$\text{VALUE} = \text{Function/Cost}$$

With this new approach, it was now possible to not only achieve significant cost savings, but to do so without affecting quality or performance. In many cases, quality and performance were not only maintained, but actually improved while cost was kept stable or reduced.

In today's fast-paced business environment, it is easy to emphasise schedule at the expense of thoughtful planning and structured approaches like value engineering. When VE is applied in the right way, it not only saves time but improves quality, enhances communication and understanding, drives new ideas and helps to optimise the use of precious resources. Not using VE usually results in more time to achieve and less optimum result.

In addition to the benefits already outlined, VE has many other less-obvious advantages including:

- Enhances team alignment and communication;
- Helps target areas for improvement that, if improved, will achieve the biggest value impact;
- Helps team members achieve alignment with each other and executive leadership in the project priorities;
- Participants work together to achieve success;
- Professional respect for the contributions of other disciplines is enhanced;
- Team performance time is compressed without compromising quality.

So where did this new approach to innovation begin? Lawrence D. Miles was the one working at GE that invented this function-oriented thinking. He originally called it value analysis and it later came to be known as value engineering due to a request by the U.S. Navy. The method is still often referred to as value analysis and is also known as value management (especially in Europe). By 1959, there were enough practitioners that a society was formed known as The Society of American Value Engineers (SAVE). Considering the methodology helped “save” so much money and other resources, the society name was especially appropriate.

VE'S EXPANSION

In the 1960s, the method was discovered by others around the world and the foundations for its growth were established in Asia and Europe. Japan and Germany, in particular, immediately saw the value of this methodology, which quickly spread through the manufacturing sectors in those countries. While in the United States the method was often used with cost reduction as a primary objective, Germany and Japan were looking for ways it could be used to also improve quality and drive creativity and innovation.

By the 1970s, the impact of VE began to be felt by dominant US manufacturers as new products from Europe and Asia began to stream in and gain market share due to their improved performance and cost effectiveness. Japan experienced a boom in the use of VE and its practice became firmly entrenched not only on the project level, but moved all the way up the corporate ranks to be used in strategic planning and related executive thinking and decision making.

In the 1970s and 80s, when people around the world saw a rapid evolution of products produced in Japan, they became curious about how this advancement was achieved in such a relatively short timeframe. The well-known impact of Deming and Drucker's management philosophies, which had been widely circulated and adopted, came back in business media and economic coverage along with stories of vertical integration and kaizen. The story that didn't make it back was the very substantial impact of VE on Japanese business as a force for creativity.

Introduced by Dr. Ueno in the 1960s at Sangyo Noritsu Daigaku (Sanno University), VE was quickly embraced as a way to enable structured innovation. It quickly spread in Japan's manufacturing industry and was every bit as important to the rapid rise of world competitiveness as any other of the key ingredients.

In the late 1970s, South Korea (led by Samsung), eager to develop its own

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industries and emulate the success of Japan, sent people to investigate what had made the biggest impact in this transformation and found that value engineering was a core aspect of this success. After working to develop a South Korean VE capability, the method started to be applied in the 1980s and early 1990s on a wider scale. In 1990, how many consumers around the world had any idea there were companies like Samsung, Hyundai and LG preparing to rise in global economic ranks, just as Japanese companies had done? Today, VE is booming in South Korea due to the results shown by these and other companies in that country.

Taking a global view, it is not surprising to discover that large global companies that use VE not only on specific projects but incorporate the thinking and methods into their way of doing business reap the greatest rewards. Some examples are too good to ignore.

In the relatively short period of time (between 1991 and 2011), Samsung rose from a national manufacturer of consumer goods to the #1 consumer electronics manufacturer in the world. Value engineering was one of the key aspects of Samsung's focus on innovating its way to the top of the market, with new products of high quality that were extremely price competitive.

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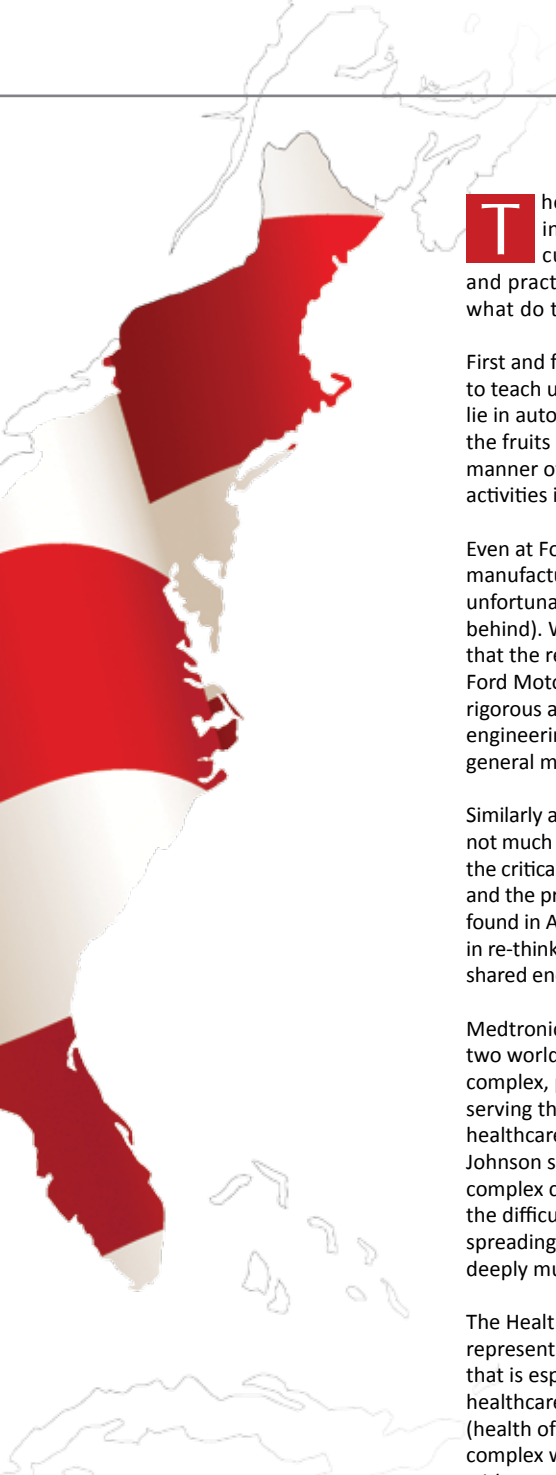
THE LEAN



John Shook, chairman and CEO of the Lean Enterprise Institute, introduces LMJ's special on lean in the USA, identifying the key lessons we can learn from the case studies included in this month's edition.

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The following five case studies intend to inform us as to the current state of lean thinking and practice in the United States. So what do they tell us?

First and foremost, the stories combine to teach us that the roots of lean may lie in automotive manufacturing, but the fruits of lean are to be found in all manner of industry and in all varieties of activities in those industries.

Even at Ford, the story is not about manufacturing in the plants (where unfortunately Ford still lags woefully behind). We learn from James Morgan that the remarkable turnaround of Ford Motor Company resulted from rigorous application of lean practice in engineering, product development, and general management.

Similarly at Acme Alliance, the narrative is not much about Acme's plant floor; rather the critical success for CEO Matt Lovejoy and the profound lessons for us are to be found in Acme's alliance with its partners in re-thinking and reconfiguring their shared end-to-end value stream.

Medtronic is a manufacturer that bridges two worlds, with factories producing complex, precisely engineered products, serving the demanding needs of the healthcare sector. Medtronic's Greg Johnson shares the insights of a highly complex company struggling with the difficult yet common challenge of spreading lean practice throughout its deeply multifaceted, global organisation.

The Healthcare Value Network, in turn, represents an approach to learning lean that is especially appropriate for that healthcare world, where the product (health of humans) and producer (a complex web of healthcare providers with strong, varied, voices) present unique challenges regarding the nature, quality and timing of the delivery of the product. The message delivered by Helen Zak is that the collaborative learning methodology of HVN fits the requirements and opportunities of that community especially well and could serve as a model for the successful introduction of lean thinking and practice into other pioneering sectors.

While the battle of bringing lean thinking and practice to healthcare is far from over, there is enough momentum now that there is no turning back. The same cannot be said for services, where efforts have only begun to scratch the surface. Hence the Starbucks story is extraordinarily timely and instructive. While many seek to overthink and complicate matters, Starbucks shows that tried and true methodologies - appropriately tweaked to match the specific needs of the situation - can be remarkably effective. The obvious place to start in an organisation with 18,000 gemba locations would be supply chain. Instead, the Starbucks lean team chose to use lean thinking to provide their baristas with the skills to do better work design on their own, as they go through the moment-to-moment, direct customer-facing business of providing patrons with exactly what they want at the exact moment they want it. This example illustrates the great folly contained in the uninformed charge that lean practice cannot be applied to dynamic service environments.

“While the battle of bringing lean thinking and practice to healthcare is far from over, there is enough momentum now that there is no turning back”

Taken as a group, the five case studies provide a good snapshot of the state of lean dissemination in the United States. It is heartening that the examples provide evidence that progress is being made in gaining broader understanding that lean management is a holistic, systemic approach to organisational improvement. Understood thusly (properly), lean thinking and practice represents a powerful means of improving any human endeavor, equally satisfying for the customer, the worker, and the enterprise.

In short, the report card on the state of lean thinking and practice in the US: much progress made – many challenges and opportunities ahead.



A total turnaround



Matthew Lovejoy, president of Acme Alliance, shares a personal account of the transformation that the company, which provides components for technical manufacturing and assembly, had to go through to survive.

I only have five heroes in the world, and Jim Womack is one of them. Simply put, lean saved my business. From 1964 to 2001, telecommunications corporation AT&T was our biggest customer. After 1996 the phone industry in the States was deregulated and the equipment arm of AT&T, Lucent Technologies, was spun off. In 2001, the price of its shares went from 80 dollars a share to 80 cents a share, and we suddenly lost 95% of business with our main customer, which represented 70% of our sales.

It was our burning platform. We understood that we had to change drastically: Ericsson once came visiting us in Chicago for an audit. Ten minutes into the audit, the company's engineer asked to be brought back to the airport: like in a Charles Dickens novel, we were the filthiest place you can imagine, with lots of WIP and inventory, building everything in batches.

A customer of ours, Milwaukee Electronic Tool, that had been a strong advocate of lean for years, suggested I read Lean Thinking. Once I did, I realised everything

I thought I knew was wrong: in lean, until you accept your baby is ugly you can't make any progress.

We started by reorganising the business away from functional designations, to destroy silo thinking. Because we operate a high mix, low volume job shop, we deal a lot with muri and mura, not just muda. We then tried to achieve flow: we quickly noticed we were covering six miles in the production of one part, in a 8,000 square metre site.

Being a family business, we have an intimate knowledge of our employees. They understood right away we were in trouble, and because we had been living modestly as a business and saving money, I could keep Acme alive without laying anyone off. Enthusiasm was palpable, as we repainted, changed the layout (the architecture in our Chicago site was very condescending, with management offices with glass windows on the second floor and speakers used to communicate with the staff below), designed right sized equipment, and so on. AT&T wouldn't buy our inventory, and we burned it all in our furnaces. The guys stayed and watched.

By moving to a flow environment, we envolved into concepts of internal supermarkets and pull, building only what customers wanted. We are now at a point where 75% of our business is direct pull, same day shipment, and our sales are back to where they were. Our Brazilian and China businesses are thriving, and thank God we had previously done that investment to serve those growing markets (nothing is exported back to the States). The Chinese and Brazilian foundries were like sponges: we started those operations with a lean orientation from day one.

Today we are a 99% on time supplier, with raw materials down 95%. In ten years, revenue per employee has doubled. Sales are back at old levels, although the amount of finished goods is 60% lower.

We had to be excellent in order to just survive, and we will never falter from the pursuit of this way of thinking.



Designed for success

James Morgan, director of global body exterior, stamping business unit, and safety engineering at Ford, explains the car-maker's approach to lean product development.

Every time Ford decides to introduce a new car, hundreds of millions of dollars are spent in product development. Creating new products is a core competence of any successful business, and transforming this capability is what saved Ford from bankruptcy and continues to separate it from its competitors. We approached this lean transformation as a socio-technical system. We made fundamental changes to all three interdependent elements of the product development system; people, processes and tools, as well as how they interacted with one another.

People were the most important element to us. Great people make great products. We focused our workforce on the customer, on creating true value and making products our customers really wanted. We made sure all of our engineers understood exactly how they contributed to this effort, as well as where we were falling short. While this was difficult initially, we built on early victories, continued to stretch the organisation and created a culture of every day excellence.

Chief engineers are central to lean product development. And chief engineers need to be surrounded by technical excellence to be successful. We realised that deep mastery of each technical

discipline is fundamental to successful product development. We spent a great deal of time on this. Developing a system to select, develop and reward towering technical competence.

We also organised around the value stream. We took the unprecedented step of combining all the disciplines required to take the body exterior from studio to market into a single organisation. Business areas that used to work separately work together now, with aligned objectives. This has allowed us to reduce cost and lead time, and to improve quality. An example is our improvement of 4 to 8% in our material utilisation: It may sound like a little achievement, but every 1% can be worth \$60m. Additionally, we actively engage with suppliers and the UAW, whom we now see as crucial stakeholders.

“ We spent a lot of time on customising our tools to make sure they enable engineers and improve processes. Working digitally from the design to delivery eliminates issues with data conversion and helps us share knowledge globally ”

We also needed a strategy to create a lean, global process for product development. One which would allow us to leverage our global capability and develop multiple upper bodies on the same platform for all vehicle segments (SUV, CUV, Sedan). We also moved people upstream, so that they could work cross functionally when design was less mature and have the greatest impact. We worked relentlessly to eliminate waste, manage capacity and synchronise cross-functional processes.

All the information we gather is posted in the Obeya, which helps identifying current and future state, the kaizens needed to progress and clarify the design rules or templates we ask our engineers to use. Because the standards are now linked, we aren't only able to design for manufacture but also to manufacture for design intent, with global learning and CI at the core of our work.

Finally, we spent a lot of time on customising our tools to make sure they enable engineers and improve processes. Working digitally from the design to delivery eliminates issues with data conversion and helps us share knowledge globally. To make processes more visible, we use simple tools like a body structure dashboard (specific numerical values for car attributes) and a quality health chart (to review critical quality enablers for processes and parts, rate them and monitor them over time). A3s are also used extensively.

In general, we did a lot to align the company from top to bottom, with great results: lead time for manufacturing and engineering has decreased by almost 50%, costs dropped dramatically, and engineering efficiency has improved by 40%. The combination of new, exciting products and world class quality and craftsmanship has improved customer satisfaction and market share. And perhaps most importantly, our people are now more engaged. It's an entirely different working environment.

How to make the impossible possible



With over 18,000 gembas to look after every day, Starbucks can be seen as a collection of small businesses. *Roberto Priolo* reports on how the company improved its operations by focusing on a robust teaching method and problem solving and by involving store employees.

There are three things you expect from a Starbucks store: good coffee, quick service and a friendly staff. The company seems to be constantly delivering on these expectations, and it can be surprising at first to discover it is in part thanks to lean thinking.

It is even more surprising when you consider Starbucks serves about 50 million customers every week in over 18,000 stores around the world, which hardly makes standardisation easy to accomplish.

So how does Starbucks ensure consistency in quality of products and service? What happened before the adoption of lean was that the Seattle Support Center was trying to direct activities at the stores without providing common methods to produce beverages. There were recipes to follow, but each “partner” (the term Starbucks uses for its employees) had its own way of working.

Each store is rightly considered a unique environment, with different layout, volumes and rates of work. Imagine walking into your local store at 9am, and then again at 3pm: it is like being in two different places altogether. With such a complex scenario it seems impossible to believe a group of people in Seattle can create a standardised work system, or “routines”,

applicable to every store in the world. Starbucks realised there was only one way to do it: making sure leadership (store and district managers) understands the work, teaching problem solving skills as well as the routines and enabling store teams to tailor the routines for the unique environment they work in.

Problem solving activities based on specific problems, like brewed coffee waste, were introduced. Managers were asked to cut the waste in half, and they did, in four months. Later, Starbucks started concentrating on improving customer experience and making work easier for partners. The routines offer employees a framework to base their work on, which results in better quality and more satisfied customers.

Additionally, a Starbucks Teaching Model was introduced to ensure new and existing partners learned the store’s standard work method correctly, from the beginning. This teaching model was based on Job Instruction from Training Within Industry.

In groups of three, Starbucks baristas are taught new routines for making espresso beverages. While one prepares six drinks, the other two observe quality and time. Then they are taught the routine, and asked to prepare the same drinks again. According to the company, they leave these training sessions enthused and excited to learn more by practising.

In a busy store in downtown Chicago - and this is a good example of team problem solving - there was a lot of waste in motion, mostly caused by the store layout. In 18 minutes a bar partner made 55 trips between the espresso machine and the back counter, most of the times to rinse pitchers or get ice. After a cold water dispenser was repurposed and some ice chests were bought, a considerable improvement was registered: only three trips in a 10-minute period.

By applying lean Starbucks was able to increase overall customer satisfaction by 18% and productivity by 13%, while coffee waste went down by over 50%.

Lean in US hospitals: what's the prognosis?



Roberto Priolo discusses with *Helen Zak*, president and COO of ThedaCare Center for Healthcare Value, the current status of lean in US hospitals and the work of the Health Value Network (createvalue.org).

Roberto Priolo: How has the adoption of lean in US hospitals evolved since the pioneering work of Virginia Mason?

Helen Zak: The adoption of lean in the US health system has steadily risen year over year. However, it is still not the mainstream operating system. Of the 5,500 hospitals in the United States, we estimate only 1% are truly on the road to real lean transformation.

RP: What are the most common difficulties that, according to your experience, hospitals encounter when trying to implement lean and make it part of their every-day operations?

HZ: Healthcare organisations in the US are very complex and highly functional, which makes cross functional improvement difficult, coupled with the low risk tolerance of healthcare management to make dramatic change. Finally, top barriers and difficulties are represented by the lack of real change management skills and experience with clinicians and administration.

RP: What does the Health Value Network do?

HZ: Healthcare Value Network, founded by the Lean Enterprise Institute and the ThedaCare Center for Healthcare Value, is a peer to peer learning network for healthcare leaders. Founded in

2009 and now with 53 members, it brings healthcare leaders from North America together to learn, share and connect. Our mission it to accelerate the pace of change within network members.

RP: What are the next steps for lean in healthcare in the United States?

HZ: Engaging boards, executive teams and leaders in leading the change within their organisations. These leaders must create the management systems and culture that uses the lean tools as part of every-day life and continuous problem solving.

RP: Has the recent healthcare reform boosted the interest for lean in healthcare in the States?

HZ: The recent healthcare reform legislation in the US has created the

burning platform for change. It is clear the future will be very different from the past. However, no one knows exactly how to get there. For example, the payment for healthcare is a "piecemeal" system, to use an old manufacturing term. The system rewards for volume only, not for high value care. Centers for Medicare & Medicaid Services is trying experiments in this area, but the jury is still out.

RP: Is it possible to identify who are, in general, the most perceptive players in hospitals with regards to the adoption of lean principles?

HZ: Good question. It's hard to generalise who are the most receptive or perceptive players. The chief change agents in healthcare have many different titles, but we can say that in the organisations with the best results and momentum the change agent is part of the executive team.

RP: What are the best examples of lean implementation in healthcare in the United States?

HZ: The top three in the US are considered to be Virginia Mason, ThedaCare and Denver Health.



Assessing, assessing, assessing



Greg Johnson, senior director of process solutions at Medtronic, talks about how the company has adapted the Shingo framework to develop a common language and mindset across the business and leverage the resulting increase in knowledge and improvement.

Every four seconds someone in the world receives therapy through a Medtronic product. Our mission to restore health, alleviate pain and extend life guides us every day. In the past 20 years, we grew from a \$1bn business to a \$16bn business, with 45,000 employees and 45 manufacturing sites worldwide.

Most of the devices we produce are implantable, and people rely on them constantly. We realised we wanted to improve back in 2003. Many of our sites were already doing lean or six sigma, but each had its own philosophy and approach. We decided we wanted to make a common language for continuous improvement available to those who wanted it, and we started deploying Lean Sigma, a process-focused architecture powered by a problem solving methodology, and working to reduce lead times and variation.

It all started with practitioners who showed interest. We achieved great results, but it wasn't systemic improvement. What we needed was pulling people together to build a community.

Some business areas got distracted, but other stuck to the new way of thinking, poised with challenge. We began to see more sustained improvement until, at the beginning of 2009, the operations council (made of the VPs of each business unit) started thinking about a long-term strategy for Medtronic's manufacturing sites. It was decided that creating competencies around

problem solving was the way to go, and that's when lean - that had previously been on the shop floor - got into the minds of leaders.

Some areas of the business thrived, others struggled, despite the problems and tools being the same. What was different was management, and we understood that if we could combine best practice we would become unstoppable.

The next phase was building on this project and creating an operating standard around it. We determined the Shingo Prize framework would help us to collaboratively share best practices, processes and culture.

To create standard work for cooperation we took five steps:

- Making sure we know what we aspire to be: we learned a lot from visits to Textron and Toyota and from assessing our performance;
- Bringing all plant managers in a single room to discuss how to accelerate the rate of improvement and discuss the principles Medtronic has to live by. They agreed that the best way to learn and move quickly is to share their secrets and look at others' best practice;
- Taking the Shingo framework and adapting it to our operating system. This entailed empowering people to act like owners, institutionalising CI in all functions and aligning and executing with discipline. We created assessment, structures and acceleration workshops, analysing work across facilities using the framework;
- Organising acceleration workshops which connect an organisation's needs with known good practice, ensuring the regular cadence of plant managers forums and creating libraries of good practice, to continuously keep people engaged;
- Checking and adjusting, by assessing the results of each site.

We reduced costs by \$1bn in five years, with over a third of the savings coming from our lean work. We are proud of it, and we now want to reduce them another \$1.2bn over the next five years.

Lean on Boeing

With a massive backlog of orders for its new 787 Dreamliner, Boeing understands that developing a leaner and more integrated supply chain is crucial. Roberto Priolo speaks to two of Boeing's UK suppliers.

In January, Boeing announced that its Renton facility had reached a production rate of 35 Next Generation 737 aircraft per month. These impressive numbers are the result of, first of all, the decision to sub-contract the manufacture of larger parts of the planes and, secondly, of the adoption of a leaner supply chain strategy.

More recently, it was the 787 Dreamliner making the headlines: the current production rate for the 787 is 3.5 planes per month, but the company hopes to reach 10 per month by the end of 2013 (at the moment there are 850 orders). French-British manufacturer Messier-Bugatti-Dowty supplies the main and nose landing gears and braking systems to the 787 programme. In its Gloucester plant, the company produces the truck beam, a component of the main landing gear.

To better respond to increasing demand from Boeing, the site layout has been changed, resulting in the creation of a high speed titanium flow line.

Matthew Taylor, production programme manager at Messier-Bugatti-Dowty, says: "Value stream mapping was one of the key tools we used in order to produce the flow line and to reduce the number of work centres each part visits, hence reducing queue time for each centre, and therefore lead time."



The company manufactures a truck beam in eight to nine weeks. In line with value stream maps and what is considered a reasonable flow time, it organises operations in a way that helps smoothing the workload, whilst trying to plateau the rates. Taylor explains: "In a facility our size the main problem in terms of schedule is the queue time of the machine. The less machine operations we have the quicker the product goes – the flow line has helped us reduce the lead time by about 30%."

Boeing is a good mentor when it comes to developing a relationship with suppliers. Messier-Bugatti-Dowty has dedicated supply chain improvement personnel to carry over best practice and make sure suppliers are aligned with the company's strategy and understand the requirements. This is the same practice Boeing adopts in dealing with its own supply chain.

Bob Eady, managing director of SIRS Navigation, a manufacturer that supplies a standby compass to Boeing and other aircraft makers, agrees. Eady says: "We tend to pass an understanding of the system we work with and the knowledge we have of working with a bigger customer to our suppliers."

Boeing represents about 10% of SIRS Navigation's business. The company has a strong lean programme, which derives from both Boeing requirements for continuous improvement and the need to reduce costs while increasing quality.

Eady explains: "We realised we weren't getting good yield, and identified the root causes in order to remove rejects. We were also looking at the way we processed the work, at flow, cutting down on unnecessary processes and duplication. From a planning point of view, in the first four months of this year we outputted 10% more of what we did in the same period last year, with one fewer headcount."

Safe people and efficient machines

SCGM's CEO, *Sandra Cadjenovic*, gives LMJ an account of what the company has accomplished on the field in the last month.



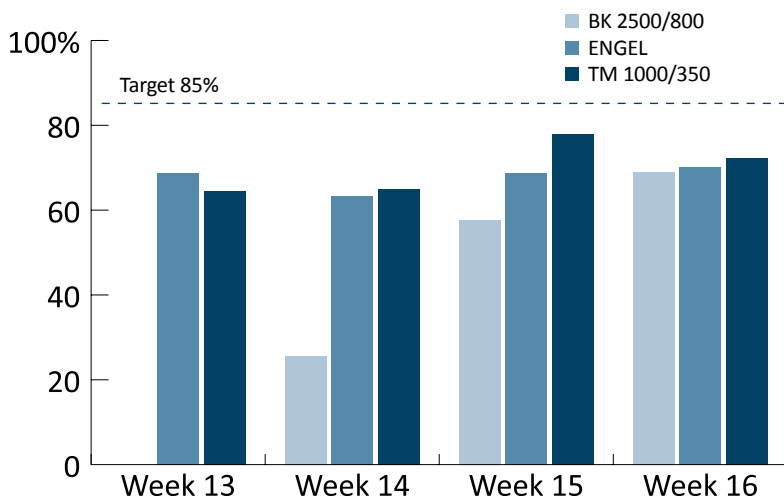
Dear readers, another month has gone by and here I am informing you on SCGM's latest progress with lean implementation. Time flies, and change happens quickly in our company. The last article focused mostly on lean safety and how we started implementing it. Since then, we took the first steps of the reactive phase: the Safety Board has been put up. You can see four indicators on it (on the left): Heinrich Pyramid, layout of the company, body outline and a green cross where the Safety Team has started to track the injuries, hazards, unsafe conditions and behaviors occurring in the firm.



All employees have been explained how to fill in the injuries form with a given example and a notice (name/when/where/what part of the body was injured). Thanks to this, they have become aware of the importance of knowing and tracking where and when safety issues arise. People are showing great interest in participating: leaders of various sectors tell me that workers are coming to them with the problems but also with ideas on how to tackle them. The conclusion is that lean has had a great impact in changing the mindset of people.

Apart from the indicators, the board shows graphs that will show how many injuries (red), first aid wounds (yellow) and unsafe behaviors and acts (green) are reported. Our diligent Safety Team has been holding meetings every week to set up an action plan to improve the company's safety performance in the months to come. They have taken pictures of all the unsafe places they detected around the SCGM facility and, with the

OVERALL EQUIPMENT EFFECTIVENESS IN PERCENTS BY WEEK



Building the Autonomous Management pillar is a time-consuming job that is not for the impatient: we created a Master Plan for it //

help of their leaders, they have begun tackling them, one by one.

After making sure that our people are and feel safer in their working environment, together with the Steering Committee and the consultant we have moved on to the next pillar, which is taking care of the main tools people at SCGM operate with: machines. Originally, we named the pillar “Advanced Maintenance”. At first, it seemed reasonable to focus our attention on machine maintenance, but during a meeting we realised that the name referred merely to maintenance, without letting the concept the pillar builds on expand to other areas and connect with other pillars. Therefore, our second pillar was renamed Autonomous Management. This indicates that together with other pillars and the operators involved we can keep the machines in the best possible condition autonomously, cut the losses they produce due to natural and forced deterioration, have better quality of the products and worry-free workers.

Building the Autonomous Management pillar is a time-consuming job that is not for the impatient: we created a Master Plan for it.

1. REACTIVE
 - Actual situation analysis;
 - Elimination of losses;
 - Evaluation and standardisation of identified solutions.
2. PREVENTIVE
3. PROACTIVE

As you can see, the stepping stone would be to analyse the actual state of the plant, with the help of the Autonomous Management team that we are about to create and introduce to the structure. We will go to the shop floor and do the initial cleaning of the machines with the operators (let me point out that much has already been done with the implementation of 5S). The machines would clearly show where sources of contamination are,

helping us to flag them up with coloured tags.

Furthermore, in defining the actual situation, calculation of OEE is essential. As you probably know, we have started tracking OEE on our three machines - BK 2500/800, TM 1000/350 and Engel. In the last article, you read about how we reduced the losses: for BK 2500/800 and Engel the biggest loss was due to the lack of people during SMED. We have hired three new employees, trained them on tool change and now our OEE has increased.

For the third machine, TM 1000/350, the main source of loss we had to attack was breakdowns. It has worked with one, instead of the usual three batters. We have replaced the old batters with new ones and the result of our meticulous examination of losses was an improved OEE chart (left).

We will introduce MTBF (mean time between failures) and MTTR (mean time to repair), the key reliability metrics for systems that can be repaired or restored.

Consider this example: a machine operates on one shift of 8 hours with 20 minutes for breaks. In a 30-day period the machine has 20 breakdowns for various reasons. In total these breakdowns account for 30 hours of lost time.

What is the MTBF ?

What is the MTTR ?

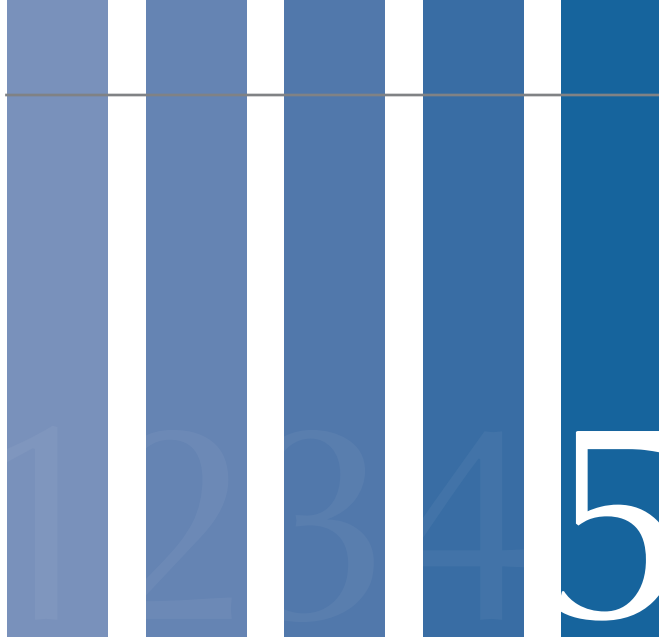
- Total available time = $(8 - 0.33) \times 30 = 230$ hours
- Total downtime = 30 hours
- Total uptime = $(230 - 30) = 200$ hours
- No. of Breakdowns = 20

$$MTBF = 200/21 = 9.52 \text{ hours}$$

$$MTTR = 30/20 = 1.5 \text{ hours}$$

All these calculations, along with loss and scrap trends, will help us to understand the present situation and lead us to the areas we need to act on first.

Here’s what we have been up to in the past month. In the next issue you will read all about our ideas being realised, and much more. Stick around!



Written by *John Bicheno*

The Fifth Column

Memo to Directors

We are facing difficult times, but the challenge can be met with our new lean programme.

- We will be starting off with a weekend away at a hotel where we will review SWOT.
- Thereafter I will be announcing some changes and initiatives. We need to act quickly on this so consultation with staff must be brief.
- Each department will be expected to reduce staff by 10% during the next year. It is bound to motivate.
- The senior management bonus will be increased and linked to the achievement of targets.
- An important growth target will be the number of enquiries received.
- I am concerned that not enough work is being done in the back office. The back office is much more effective place for work to be done if high productivity is to be achieved.
- An organisation I know will soon be conducting a lean readiness assessment. This will help identify where we need to focus our attention.
- I am impressed with the 'Go to Gemba' concept. Please make sure that your managers do this regularly – at least once per week.

- The scrutiny of cost variances must be improved. I expect managers to take this up in their relevant cost centres.
- Top priority must be given to the on-time production of reports, which must contain details of progress against targets.
- We must make sure that all service centres are fully utilised. We cannot afford non-productive time.
- I expect to see the '7 wastes' posters we have ordered to be prominently displayed.

Service is crucial to our future. The following points relate to this:

- Standards must be enforced.
- The previous 5S programme must be re-initiated. Staff cannot be expected to give good service if their desks are untidy!
- Productivity targets relating to call times in the call centre must be established. Standard call times must be reviewed.
- Targets will continually be reviewed, and should be fixed in relation to the previous quarters' performance.
- We will investigate further automation in the call centre. If this does not

yield sufficiently good results we will have to consider moving the call centre to India. We may have to consider this in any case for cost reasons. I have asked for a report from our consultants.

- Since customer satisfaction is very important to me, supervisors of front line staff must produce documentation on customer problems. Customer surveys will be very useful in this regard.
- The number of reported problems must be reduced. We will initiate a bonus system for reduced problems.

- Service response time is obviously important to our customers. To that end I have asked consultants to carry out value stream mapping exercises. These will reveal the potential for waste elimination. By adding up the current activity times we will get an idea of current lead times.

Remember, profitability must be our top concern.

I.M. Fake, CEO (Alias John Bicheno)

INNOVATIONS IN LEAN THINKING

CELEBRATING 10 YEARS OF THE LERC ANNUAL CONFERENCE
25-26 June, Cardiff Novotel - Keynote Speaker: George Koenigsaecker

The Lean Enterprise Research Centre (LERC) has for the past 18 years assisted manufacturers and service organisations to improve their operations, reduce wasteful activities and build in value to their production and supply chains.

Renowned for exceptional research, a world class Master's programme and industry focused training programmes, LERC also runs one of the most respected UK conferences in Lean Thinking. This year it celebrates 10 years of running its annual conference, with George Koenigsaecker as the keynote speaker.

George Koenigsaecker, Keynote Speaker

George is a Board Member of Simpler Consulting LP, a world leader in lean-focused management consulting, a principal

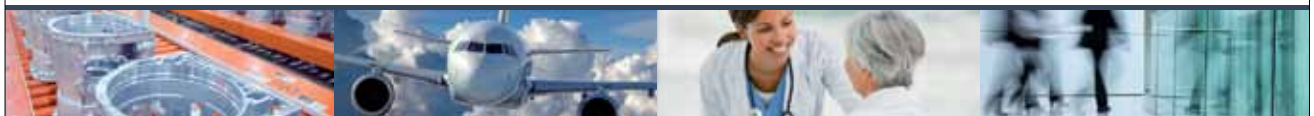


investor in several lean enterprises and a Board Member of the Shingo Prize. He will be talking about leadership and sustainability.

'Companies must be willing to go through their value streams many times to receive the most value. Until

you have gone through your value-stream processes at least five times, you haven't really experienced lean'

We look forward to celebrating 10 years of the UK's most innovative lean conference. Visit www.leanenterprise.org.uk or telephone **029 2064 7028**



LERC Lean Enterprise Research Centre



IN CONFERENCE

PROCESS EXCELLENCE WEEK

London; April 24-25

On the second day of PEX Week, when Steve Towers of the BP Group showed a list of the companies with which his company has worked, defining them as examples of excellence, I was slightly surprised to see Ryanair among them. I wasn't the only one. Michael O'Leary will have to forgive me, but the Irish low cost airline doesn't exactly strike me as an example of excellence - flights at inconvenient hours, cabin crew constantly trying to sell stuff, surcharges, strict rules on hand baggage and nasty staff would normally be a recipe for disaster. However, the numbers speak for themselves: Ryanair has a great track record of on-time flights and is Europe's largest airline for number of passengers.

Towers pointed out that the reason behind Ryanair's success is the fact that the company knows exactly who its customers are, and is basically not interested in appealing to anyone falling out of that category. If you are a businessman flying to an important meeting somewhere in Europe, the message for you is simple: fly with another airline.

This was only one of the interesting points made during the two days of workshops and learning sessions organised by IQPC at London's Film Museum. Connie Moore of Forrester Research explained what business will look like in 2020, reminding us that "this is the age of the CFO, not the CMO." She added that companies that are not focused on process have a disjointed way to serve customers, and that sustainable enterprise-wide transformation processes are necessary if

a business is to survive. Moore also identified five tenets, important things companies have to do: go for transformation, not improvement; give customers control (only 7% of companies at the moment offer excellent service); globalise, standardise and humanise; move beyond processes, embrace big data; and double down on process skills.

Ahmed Mazhari of Genpact had made a similar point earlier in the day, saying that real business transformation is seeing end-to-end processes, like customers do.

Big data was a recurring topic at PEX Week, with Andy Jones of Software AG delivering an interesting presentation on the challenges, and opportunities, that the constant flow of petabytes of information can offer to companies that learn how to deal with them. Data used to be static and understood in advance, while now it's all about understanding the flow of data. By adding context we can isolate the data we need and make it usable, while mitigating the constraints in IT performance.

Jones said: "One of the things we are trying to do is moving IT closer to process improvement, to move it closer to what businesses want. Software AG's business model is about becoming more agile, creating an IT structure that is easier to change in order to make things easier to monitor and transform."

It's necessary to increase the agility of IT to make sure it responds to ever-changing customer

requirements and to the issues that big data presents. Increasing volumes of information can be overwhelming for companies, and understanding how to detect the significant bits is fundamental.

With attendees flocking to London from as far as Saudi Arabia, Chile and Hong Kong, this event provided a platform for learning and discussion, with people actively engaging with speakers, asking questions and often challenging the points they made.

Robert Barnes of the Department of Work and Pensions shared the department's lean journey, and the unique challenges it faces, including a rising unemployment rate, a reduced budget and the need to simplify the customer's journey across government.

The DWP awards £132bn a year in benefits (more than Portugal's GDP), using £4.6bn to administer services. After starting adopting lean in 2006, the department made sure each area could apply the lessons learned independently. At the end of the programme, more areas for improvement (the below-the-water areas, to use the popular iceberg model) were identified: realising the customer is, after all, its fundamental supplier (of information) the DWP intends to move more into the supply chain.

On the second day, when the somehow controversial point on Ryanair was made, Steve Towers said that we should stop talking about process and start talking about performance:

after all, the customer experience is the process. According to him, once successful companies have been almost wiped out from the market because they weren't able to properly understand customers' requirements. When Towers asked people in the room how many of them owned a Motorola or Nokia phone, a couple of hands went up, shyly. When he asked who owned an iPhone, everybody raised their hands.

Estelle Clark of Lloyds Register summed it up pretty well during the Process Improvement Visionary Council: "Be bold to see the customer," she said, after pointing out that social media has an enormous impact on business (reminding everyone, with a grimace, that the person with most followers on Twitter is pop singer Lady Gaga).

Other sessions during the two-day event included an interesting presentation by the Direct Line Group, the UK's largest general insurer handling two million calls a year, and a panel on regulation and compliance, which saw Philip Price, former CFO of Readers Digest, tell the audience that 60% of six sigma projects fail, and that new regulation can be used as a burning platform for change.

There were several opportunities for networking, which delegates used to meet with vendors and discuss the most important issues facing the process excellence community. The case studies presented at PEX Week, together with an engaged audience that asked several questions, made these two days a great opportunity to learn and share best practice.

The Harada Method



Norman Bodek, president of PCS Press and LMJ's editorial board member, and David Fennig, a senior at Portland State University's Business School, explain the Harada Method, a system to consistently develop people within a business in order to achieve improvement.

You don't have to be an engineer, a contractor or an architect to know that a building supported by two pillars relies on both of them to carry the weight. No matter how strong one of the pillars is, if one is built incorrectly or begins to weaken, the building will lean over and eventually collapse. The same is true in business. Many companies have tried to implement the principles of the Toyota Production System but have not been fully successful because they have not focused on building both pillars of Toyota's system.

Toyota defines the two pillars of its production system as just-in-time manufacturing and respect for people. Since lean came to the US in the 1980s, many companies have adopted it to cut costs, raise productivity and develop higher quality products. Lean has redefined the way the best companies in the world do business, and it has helped struggling companies come back from the brink of disaster.

Unfortunately respect for people, lean's second pillar, has not been implemented as aggressively as other concepts. This has led to an imbalance of the "business house", and now threatens the long-term stability of companies that are investing too heavily in developing their production

processes, while neglecting to invest in developing their people.

As companies grow and produce larger amounts of products, they begin to focus more on the process than the people. Eventually, companies grow to the point where they focus entirely on the process and allow their people to become parts of the process rather than the other way around. Processes become rigid, inflexible, and each slight change must be made by a massive, company-wide redesign that is both expensive and time-consuming.

Having processes set in iron like this means that in a company of 2,000 people, only a few executives and upper management are allowed to think about and adjust the processes. By elevating the process above people, a company reduces the workers' ability to adjust their own work. The ironic thing about this current situation is that the people who are working on the floor or with customers on a daily basis are the ones who are the most qualified to improve their work. They are the ones who see the tiny details that could be altered to make their jobs more effective and more productive, but management does not ask them for ideas. This is a waste of the brainpower that has been hired by the company, and is not treating people with respect.

How can businesses reliably harness the power of having every employee thinking about the process that they are working on? How can a business systematically bring out the skills and capabilities of their workers to strengthen the second pillar of business success? The answer may lie in a training method developed by a coach in a poverty-stricken, rundown middle school in Osaka, Japan.

Takashi Harada was the track and field coach at a school where students were barely expected to graduate, a place where few ever went on to college. It was a poor urban environment where students were unmotivated, unsupported and unsuccessful. They had inconsistent discipline given to them by their parents, and generally low expectations from their peers, their parents and their teachers. Furthermore, the school was one of the worst in Osaka in track and field. Harada did not accept this mediocrity, so he developed a plan for changing the school's reputation forever.

Harada saw that other schools that pulled students from the same neighborhoods could still "win" consistently. He determined that success was no accident. Instead, he believed it was a repeatable phenomenon, and there was a dramatic opportunity for improving the team as well as increasing the quality of life for the students. He asked the school board for more control over his students' lives and training.

He was determined to turn a group of unmotivated, impoverished and near delinquent pre-teens into the best team of student athletes Osaka had ever seen, and he succeeded beyond anyone's wildest expectations. Three years after Harada started teaching his methods to the students, the school was recognised as the best school in track and field in Osaka. In fact, it remained at the top of the 380 schools in Osaka for the next 10

consecutive years. Thirteen of his students went on to win national gold medals in their disciplines, meaning that for their age group they were the best in Japan.

How did Mr Harada drive such a dramatic turnaround? How is it possible for a single coach to redefine the way that his students approached life and encourage the whole team to become genuinely great at a sport? More importantly, is it possible to achieve similar results if his training method is applied to the business world?

The Harada Method focuses on premeditation, personal excellence, goal setting, service and self-reliance. The premeditation involves choosing a skill at which a person wants to excel. This is one of the things that differentiate the Harada Method from other ways of developing individual talent.

Harada encouraged his students to learn by studying the best in the world and mimicking their technique. He taught them to use world records as benchmarks, and encouraged them to try and surpass what was currently the best. By having the students set aggressive and achievable goals he helped them lay down a roadmap to become great in their disciplines. He repeatedly told his students that by focusing on constantly improving they could beat the previous best record in the world.

In addition, Harada emphasised selfless serving, both on and off the field. He insisted that his students learn how to give of themselves. He led by example, every day going to his home and cleaning the toilets in his house. By teaching selfless life skills, Harada developed a holistic, spiritual approach to discipline. He gave students the tools that could be used in any realm they wanted to pursue.

After achieving success as a coach, Harada decided to take his method of inspiration and personal development to the business community. He encouraged companies to focus on the development of their people's abilities, and encouraged workers to be the best in the world in their particular area. He taught companies self-reliance, which is defined as recognising that every individual can have the intelligence and ability to make the right decisions for the company without strict monitoring and regulations.

Since moving to industry, Harada has given training seminars to 55,000 people at 280 companies. One of his clients is Uniqlo, one of the most successful clothing stores in Japan and one of the fastest growing stores in the world. Harada's methods change the way that individuals respond to their working environment, and help people learn to enjoy their work. Employees using the Harada Method become self reliant, increase their personal satisfaction and growth at work, as well as their productivity. Harada's methods are recognised in Japan as the best techniques of day-to-day management. His technique is effective for developing people's skills and encouraging them to pursue excellence.

Teaching the Harada Method of self-reliance and applying it on a daily basis to every aspect of work could help revitalising the western business renaissance. This method could reinforce the second pillar of lean, making businesses much stronger and able to adapt in the highly competitive global economy.

Towards mixed model management



Bill Bellows, associate fellow at United Technologies' Pratt & Whitney Rocketdyne division and LMJ's editorial board member, shares a brief proposal for the integrated use of Micro and Macro System Model.

What if every professional firefighter in the world followed their country's firefighting orders? In the United States, these documents are known as the 10 Standard Firefighting Orders and 18 Watch Out Situations. Would there ever be another firefighting injury? Or, in a manufacturing plant, what if standard planning and processes were followed by every operator, to the letter? Would defect-free parts be produced time and again? Would the resulting parts be identical and then "fit" into a sub-assembly and the many sub-assemblies into an airplane, smart phone, or fire truck?

The planning model of interchangeable parts, with major contribution often given to Honore Blanc, who lived in France in the late 1700s, offers such a vision, with an outcome of products, processes, and services that "work" (as planned), including zero fight fighting fatalities.

The American System of Manufacturing followed shortly thereafter when Thomas Jefferson's implementation vision was shared with Eli Whitney, leading to the first-ever contract with the US Congress for a product made with interchangeable parts.

Such a simple design model is founded upon assumptions that include no variation in the interpretation of the standard processes and no variation in how the steps are followed, leading to no variation in parts and, further along, no variation in sub-assembly fit and no variation in system performance.

For firefighters, add the belief that reaction times are faster than changes in fire conditions. Other than constant daily reminders of the existence of variation, from non-identical twins to non-identical snowflakes to finite and variable reaction times, one might lapse and believe such a Utopian tale of a digital universe. For clarity, such a system could be referred to as a Macro System Model, which, like all models, can be said to be wrong, but, at times, extremely useful. As a fitting complement, consider the existence of a Micro System Model, in which variation in parts, fits, and performance is acknowledged, monitored, and maintained, if not purposely reduced or expanded. In such a model, parts are "parts of" something larger and then again so, with the Macro System Model offering an ever-useful frame of reference for views from a distance.

In my industry experience over the past 25 years, I have found both the Macro and Micro System Models to be operating invisibly, leading to all too frequent consternation and problems, let alone failed solutions. With great consistency, I am also reminded of quality as defined by the classic model of "conformance to requirements",

with little, if no regard for the quality of how well parts are integrated and a realisation that interchangeability is always relative and never absolute. Such is the prevailing thinking of quality in the communities of practice of six sigma quality and lean, with rare exception.

Perhaps if our organisations delivered parts that literally flew in close formation, never touching one another, would there be a need to focus on the quality of parts taken separately? If, however, the parts are part of something bigger, such as a steering wheel of an automobile is part of a steering system or a turbo pump is part of a rocket engine, would the relationship between the parts be a more appropriate focus of attention, rather than the parts taken separately? If so, how the requirements are met would be a focus of great interest, implying a visible causal link between how requirements are met and how parts are integrated.

Such awareness would surely lead to advances in systems engineering and systems practice. Lacking a Micro System consciousness of the existence and location of variation for a given set of requirements, organisations are forever trapped in a world of parts, with the belief that all parts that meet requirements are not only good, but also equally good. If so, conversations about how requirements are met would be of little value, hence considered waste.

Much the same for how many resources (people, money, equipment, time, etc.) are allocated within organisations on parts that are good and arrive on time, a favourite question, for which the answer is almost always ZERO! As with the ability to categorise non-conformances by type and timing, yet not significantly reduce their occurrences and cost structure, here lies another reminder of the invisible

influence of the Macro System model in daily practice. And, should defect-free parts and tasks be achieved, could improvement be justified once requirements are met?

Unknowingly, a Macro System viewpoint creates both personal and organisational blind spots that deny opportunities for continuous improvement if one was to adopt a Micro System Model and seek gains associated with managing variation in how requirements are met, not stopping at zero defects. I'm not the only one to see gold in these streams, yet, as judged by the language and focus, lean six sigma efforts are not overly aware of the mining opportunities herein. Instead, these conversations lead to the elimination of muda and non-value added tasks and miss the golden opportunities of a Micro System view.

Interestingly, the model of Quality Loss defined by Genichi Taguchi in his pioneering focus on the quality of relationships, not parts, was adopted by Toyota in the 1950s and is still in use today, only visible to those trained to see such Micro System behaviors. To those who choose to embrace a Micro System viewpoint, as one does at home when aiming for a target dimension when defining the required length of a part of a home project (and not merely conforming to the requirements of a mechanically defined tolerance), one may perceive that the success of the Toyota Production System cannot be solely explained by the existence of a Macro System Model, with its steadfast belief in "conformance to requirements" and "parts that are good are equally good".

Those who can peer past this model and juxtapose it with a Micro System viewpoint will perceive the opportunities for returns by making good parts better, limited only by the achievement of gains that outweigh the investments. In

doing so, organisations will realise the limitless opportunities for teamwork that are associated with an acknowledgement of interdependence, not the limitations of independence that a Macro System Model is built upon. I have been fortunate to see these results first-hand on many occasions, yet do not see their accounts explained often enough by the ongoing research in the lean six sigma communities in which I have participated.

This comment piece is offered to provoke an exceptional value proposition behind exploring opportunities for investment in parts that are not equally good, for the existence of variation in life assures us that modeling the performance of an assembly of good parts and sub-assemblies as “fitting” and the resulting product to “working” defines a world without variation.

As organisations awaken to the interdependence of parts and the profit potential of teamwork, more and more customers will benefit from thinking about Macro and Micro System Models in the way that Toyota’s customers have grown to expect.

Excellence in the Gulf



Andy Gibbins, managing director of GLAS Consulting, and Kefah El Ghobas, senior specialist at Dubai’s Road and Transport Authority (RTA), discuss how the

Middle East is understanding and addressing the need for operational excellence.

The Middle East is a rapidly evolving region. New industries are growing fast and there is much change taking place. This is very exciting for the people in the region but it does create challenges as the new industries and government services strive to achieve excellence in all aspects of their activities.

Countries in the region (particularly in the Gulf Cooperation Summit, which includes Saudi Arabia, Oman, United Arab Emirates, Kuwait, Bahrain and Qatar) have seen substantial investment in infrastructure and industrial projects in recent years and this trend is set to continue into the foreseeable future as nations use their hydrocarbon wealth to diversify and grow their economies. This led to a construction boom (and bust), to the growth of new industries and to mass immigration to provide the workforce to support this growth.

The other unique challenge and opportunity for the Middle East is the multicultural diversity that exists in society and in the workplace. People from 176 different nationalities work in Dubai, for example. This brings about

a cultural dimension which is enriching but also challenging, given the differing cultural norms and styles that exist for each group.

Many Middle Eastern companies are competing in global markets. Taking the oil, gas and petrochemicals sector as an example, the region certainly benefits from cheap and abundant feedstock. Given that assets are relatively new, there are also the benefits of economies of scale. However, competition is strong and downturns in the global economy have negatively impacted demand.

Such industries are highly competitive and highly cost sensitive and there is an increasing realisation in boardrooms that more needs to be done in management and operations in order to be truly ‘world class’. This is particularly critical for the multi-billion dollar projects in the energy sector, where investors are demanding good returns on their significant capital investments.

Established multinational organisations have, of course, a long history and a strong experience base in lean and six

sigma, but many 'local' companies and government organisations too are now aware of the need for change and try to deliver operational excellence.

There is, however, something of a talent gap. Most current green belts and black belts are expatriates and most training is provided by international training



providers. There is undoubtedly a need for better training provision in the Middle East, so that organisations can develop and utilise skilled practitioners in order to drive change.

Most Gulf countries are pursuing 'localisation' programmes, designed to develop skills in native populations. The development of operational excellence capabilities needs to be a significant element of this upskilling, if future practitioners are to come from the local workforce.

One particularly positive note is the recognition of the need for operational excellence in public services. In many countries, service provision has had to develop very quickly, to keep up with extraordinary levels of population and industry growth.

Taking Dubai as an example, the city has grown extensively over a very short period of time: infrastructure such as roads and mass transport systems had to be put in place very quickly.

As a major international business hub, Dubai had to enhance governmental services quickly, in line with international best practice. To do this, the Dubai government developed an excellence model specifically for public service bodies in 2007. This model of excellence created a desire for change and catalysed the development of systems and processes, so that the government of Dubai could show itself as a global centre of excellence to its various stakeholders. Although there is still work to do, services are improving quickly, making Dubai a popular location for international business.

The Dubai RTA, formed by royal decree in 2005 to enhance the public transport facilities and improve roads across the emirate to make travel safer and smoother, is perhaps the best example.

When the government recognised the need to provide an advanced and highly efficient transport network for the city, RTA assumed responsibility for planning and meeting the requirements of transport, roads and traffic in the Emirate of Dubai, and between Dubai and its neighbouring emirates and countries. The remit was to provide an effective and integrated transport system capable of achieving Dubai's global vision and serving the vital interests of the Emirate and its people.

Within a few years, RTA has achieved a major success. Road accidents had represented a big issue, with a fatality rate of 21.9 per 100,000 people in 2006: in 2010 it was 12.5 per 100,000 people. This was achieved via systematic improvement of roads network and

by establishing an advanced public transport network on land and water.

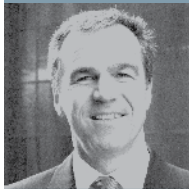
Such results from a newly established governmental entity would be impossible to achieve without a strong operational excellence vision and culture. The success of RTA came from its clear vision and objectives, the development of a highly capable team with a strong operational excellence focus and by using highly capable cross functional teams to work on improvement initiatives.

Dubai RTA reached its goal for excellence and gained ten prestigious awards from the Dubai Government's Excellence Programme (DGEP) in 2009. This was done by developing a solid operational excellence based methodology to implement strategies at an operational level, developing the right organisational structure to deliver objectives and carefully managing budgets to deliver improved services to customer without cost increases. Continuous improvement has become a way of life for this very young government entity.

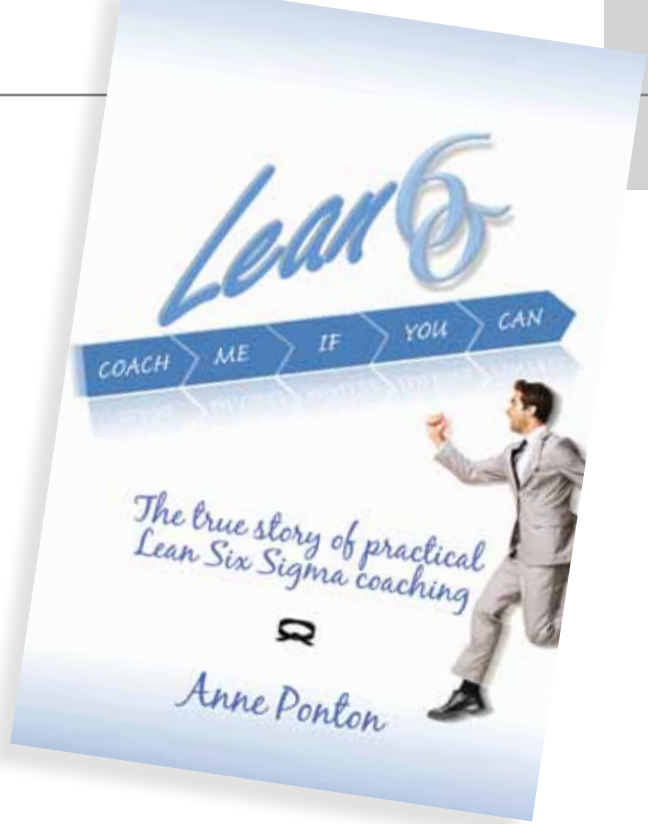
Growth and capital investment in the region are set to continue. There is also a strong recognition of the need to develop more 'downstream' manufacturing industries – to supply products locally and to provide more jobs for local populations.

This continued growth will bring opportunity but it will challenge industry to adopt operational excellence as a way of life. Organisations need to ensure that they have OE as part of their strategy and must ensure that they recruit, develop and retain people with the right skills to drive this effort. In particular, this means developing local talent and reducing the reliance on expatriates, who will, eventually, leave.

BOOK REVIEW



Brenton Harder reviews Anne Ponton's *Lean Six Sigma: Coach me if you can!*



Our mission as lean leaders is to continuously improve the way our organisations function, and we learn early in our careers that an ever growing community is a key ingredient in sustained success. However, building engaged communities requires considerable time and effort in coaching and development of our black belts, green belts and other quality associates. But what if we could build, morph, and craft a lean six sigma expert in just 22 weeks?

Anne Ponton shows us how to systematically coach, train, and fully develop lean six sigma practitioners in her new book. It is a highly usable and practical “cookbook” dealing with every element involved in lean six sigma coaching. Thanks to practical step-by-step recipes, Anne provides guidance to black belts and master black belts in successfully coaching future green and black Belts. The book also helps green belts to successfully run their own process improvement projects, offer guidance to successfully orientate their quality journey and become responsible for their own output. To managers of

current and future lean six sigma experts, it is an essential guide to managing expectations, assigning responsibilities, further developing capability, and continually motivating the creativity and growth of your quality team. It also appeals to curious readers keen to understand the process excellence mindset and figure out what it takes and what it means to be a change and innovation expert.

This is the first book I’ve seen bring together the lean six sigma methodology and practical coaching techniques applicable to any quality deployment. Unveiling tips and tools critical to success and outlining the benefits to be expected throughout the deployment, *Lean Six Sigma: Coach me if you can* is a ‘must-read’ manual to accelerate community and ensure you build a culture of continuous improvement.

Do not expect a passive reading! I guarantee your highlighter will be dry before you get to the last chapter, and I am confident that Anne’s checklist will soon become a best practice in many lean six sigma engagements across the world.

“ This is the first book I’ve seen bring together the lean six sigma methodology and practical coaching techniques applicable to any quality deployment ”

EVENTS

There is currently an expanding pool of events available for the development of the lean community. They offer both general and sector specific opportunities to renew your enthusiasm and gain new perspectives through communicating with lean contemporaries.

UPCOMING LEAN EVENTS INCLUDE:

8TH ANNUAL PROCESS EXCELLENCE SUMMIT & AWARDS 2012

June 26-28, Dockside, Sydney, NSW, Australia

As leaders are faced with continuous cost cutting pressures, higher revenue targets and excellence in service delivery they are increasingly turning to process excellence and business improvement leads to support the strategic goals of their businesses. The challenge with process improvement remains that of identifying the best opportunity for your business. IQPC in partnership with the Australian Association of Lean Six Sigma Practitioners invites you to the 8th Annual Summit, designed to bring together thought leaders to assess key initiatives in the business improvement space. The event will deliver 17 industry case studies including Auckland District Health Board, Sydney Water, Goodyear & Dunlop Tyres, Westpac, Pfizer and Johnson&Johnson Australia.

LEAN SUMMIT 2012

August 7-8, Sao Paulo, Brazil

Be inspired by the ideas and thoughts of the leading international lean thinkers and learn how to overcome the challenges of implementing lean at the various levels and backgrounds. The Lean Summit, now in its 10th year, brings cases of companies with advanced applications and innovative approaches, covering various areas of business: strategy, leadership, people management, sales, production, logistics, product development and finance. Keynote speakers will include Mike Rother and Brian Maskell, while sessions will be delivered by companies including Mercedes-Benz, Embracer, 3M, Scania, Whirlpool and Brasil Foods.

THE 2012 LERC ANNUAL CONFERENCE

June 25-26, Novotel, Cardiff

LERC will be presenting more innovations in lean thinking. Expanding to a two day conference, both manufacturing and service cases will be presented at the event, with the keynote speech to be given by Simpler Consulting's George Koenigsaecker, who will share many of the key leadership "lessons learned" from his personal experience in starting 13 corporations on the path to a lean transformation. John Bicheno had this to say about the keynote presenter: "George is a key figure in lean having led the lean transformation at both Danaher and HON. His cases were written up in 'Lean Thinking'. Several MSc alumni will have heard his dynamic presentations at AME Conference and read his book 'Leading the Lean Enterprise Transformation'."

OPERATIONAL EXCELLENCE SOCIETY

Meet leaders and professionals from your local business community and discuss the most common problems companies experience in trying to achieve excellence. You will go home with many ideas and a lot to think about,, and with new interesting contacts.

June's highlight

June 18

New York City,

I Tre Merli

Irina Munarova, a certified lean trainer at the Health and Hospital Corporation and a physician assistant at Jacobi Medical Center, will give a presentation entitled "Process preparation". For more information, please contact Richmond Hulse on hulserj@xonitek.com

Other Operational Excellence Society chapter meetings include:

Warsaw, June 11

Terere Restaurant

For information, please contact Malgorzata Krukowska on krukowskamj@xonitek.com

Dubai, June 11

Sheraton Jumeirah Beach Resort – Panorama Meeting Room

For information, please contact Andy Gibbins on andy@glasconsulting.org

Munich, June 12

Restaurant Ludwigs

For information, please contact Martin Haack on haackmf@xonitek.com

Abu Dhabi, June 19

Technology Park Campus, University of Strathclyde Business School, Abu Dhabi

For information, please contact Junaid Ward on junaidward@gmail.com

THE FLEXIBLE WORKFORCE *FLEX FOR THE FUTURE CONFERENCE 2012*

July 5, The Hilton Metropole, Birmingham (NEC)

Flex for the Future is the first conference in The Manufacturer magazine's new Future Factory series. Through keynotes and case study presentations this conference will explore best practice methods, systems and thinking in producing a workforce that can be flexible, productive and competitive now and in the future.

Confirmed keynotes and case studies include:

- Clair Winder, head of HR in manufacturing, BAE Systems;
- Derek McIntyre, global operations director, Vernagroup;
- Ian Greenaway, managing director, MTM Products;
- Neville Henderson, senior consultant, Pasfield Curran;
- Tracey Marsden, senior associate, Nabarro;
- Simon Fenton, partner, Thomas Eggar;
- Geoff Evans, production manager, Aimia Foods;
- Colin Watts, lean six sigma facilitator, Aimia Foods.

Case study topics covered will be:

- Annualised hours;
- Systematic approaches to workforce management;
- Workforce forecasting and scheduling;
- Employment law, legislation, EU regulations and Trade Unions;
- Strategies for managing agency staff;
- Recruitment and retention strategies;
- Entry level engagement strategies;
- Lean six sigma and the flexible workforce;
- Managing and sustaining change;
- Technologies for flexibility and mobility.

With labour costs often being the single largest cost for many organisations, this event will be highly relevant to manufacturers looking to increase workforce flexibility and any senior manager looking to reduce costs.

Attending the conference will be:

- Chairmen, CEOs, presidents and vice-presidents;
- Directors, managing directors and general managers;
- Factory managers;
- Union and government officials;
- Heads, directors and managers of HR, operations, manufacturing and IT;
- Representatives of industry associations;
- Academia.

For further information visit www.themanufacturer.com/events, telephone Benn Walsh on 0207 401 6033 or email b.walsh@sayonemedia.com

THE MANUFACTURER OF THE YEAR AWARDS 2012

WORLD CLASS MANUFACTURING AWARD – NEW FORMAT

Entry deadline: July 31

This year, The Manufacturer of the Year Awards competition includes an exciting new addition to the programme. The World Class Manufacturing Award, one of eleven award categories, will include site assessment visits as part of the judging process. Each of the shortlisted entrants will be visited by two independent, unconnected judges who will assess the nominated plant.

The WCM award will go to the manufacturing company or plant that, in the opinion of the judges, best demonstrates that it is trying to achieve world class manufacturing standards through the application of lean and six sigma methodologies.

The site assessment visits will be undertaken by the following subject area experts:

- WCM Judge: Dr John Homewood, Associate & Researcher, Lean Enterprise Research Centre, **Cardiff Business School**;
- WCM Judge: Peter Watkins, Global Lean Enterprise & Business Excellence Director, **GKN**;
- WCM Adjudicator: Jon Tudor, Head of Programmes, **Lean Management Journal**.

For more information contact Laura Williams on l.williams@sayonemedia.com or visit www.themanufacturer.com/awards





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