

Welcome to the 100+ new members of the AME-UK who joined as a result of attending the Lean Business Conference at Gaydon in early July. This newsletter is usually informal and is sent to all members, usually every six to eight weeks. Your comments or articles are most welcome!

In this edition, there are some brief notes on the Lean Business Conference and messages from Jim Womack and Dan Jones. I have also stolen a couple of articles from the Canadian consortium's newsletter compiled by Don Breakey. I have also included Andrew Turner's email to the conference attendees about networking.

Lean Business Conference

Heritage Motor Museum, Gaydon
11th July 2006

The conference organised by the AME-UK and sponsored by Findlay Publications Works management and manufacturing Computer Solutions magazines. It was opened by AME-UK President, Bob Davis, who welcomed the 102 attendees and then introduced the chair for the day – Joe Booth.

Key points from all the presentations are below:-

Joe Booth – Access2 Growth
The UK Manufacturing Challenge

- Manufacturing is the wrong word – adding value is a better description
- UK has two major problems – low productivity and mediocre management
- The best organisations are

IKEA - clean, green
Dell – no retail outlets
Wal-mart – global
Cisco – adaptive – no factories
Zara – small batches, time to market 5 weeks

- UK struggles most with the bottom up culture
- Targets should be tough, achievable and set by the workers themselves
- Introduced the 20 Keys for improving an organisation

Richard Kunst – La-Z-Boy - Canada
A Lean Conversion

- The perfect process is where the object starts and stays in motion

whilst constantly adding value in the eyes of the customer from start to delivery in a lot size of one.

- Businesses need lean operations, robust processes and involved people
- Key tools are

5S + 1
Visible factory
Standardised work
TPM
Flow – kanbans and pull
OEE

- Eliminate the seven wastes
- Management is by walking about – production meetings should be every day, on the factory floor – not in an office.
- A personal comment – 'Toyota is so standardised, they can no longer handle innovation – suggestions take up to five months to implement

Nigel Lack – Unipart
To Be the World's Best Lean Enterprise

- All programmes revolve around people
- Successfully integrated lean and ERP
- Importance of customer/supplier relationships
- Unipart Way:-

A great place to work
The way we do things
Solid lean principles

- Watch 'Super Nanny!' Reward good behaviour, do not punish bad behaviour.
- Good leadership is critical

Please send your news views and comments for the next AME newsletter to:-
chris.mckellen@manufacturing-awareness.com

Mariela Castano – Nestle Waters -
Canada
How to Do More, With Less

- o Understand the culture – develop inspired and motivated people
- o Focus on the most important thing that disturbs flow
- o Show leadership
- o Reduce lead times
- o Learn to See – using Value Stream Mapping
- o Convey change with passion

Ralph Woodhead – Open Logistics
Getting IT Together

- o Every business is different – one solution does not fit all
- o Develop people – they make change happen
- o Eliminate waste, implement best practices, reduce lead-times
- o There are many kits of tools (six-sigma, lean etc) – pick the right tools for your business depending on the process characteristics
- o Apply good IT systems with continuous improvement
- o Develop people through evolution – sometimes revolution is necessary!

Henrick Grann – Global Verticals
Lean and IT

- o Lean thinking eliminates waste in IT
- o Many ERP systems have features that have little purpose, do not add value and have inappropriate measures
- o Flow can be hampered by complex features of the IT system and the need to re-key data
- o Great technology is available – try to use it
- o Map flow against IT, don't focus on features

Chris McKellen – Manufacturing
Awareness
Implementing Lean

- o Reasons for introducing lean: -
Competition, Reduce costs,
simplify systems – deliver right on
time
- o Lean involves everybody in the
organisation and all departments
having passion and commitment
- o Tools
Value Stream mapping
5S + 1
Theory of Constraints
Flow
- o Develop trust in people
- o Example of successful IT
implementation in conjunction with
lean
- o Importance of sustaining
- o Getting the performance measures
right.

Jim Womack's monthly email

Twenty years ago this month, when my first daughter was born, the young men I supervised in MIT's International Motor Vehicle Program went dashing out of the office to buy her a gift. They returned shortly with a pink T-shirt, size 1, with the stencilled message on the front "Muda, Mura, Muri."

My wife was bewildered – "Is this how guys welcome a baby girl?!" But I could understand. We had made an intense effort that summer to understand these new Japanese terms for waste (muda), unevenness in operations (mura), and overburdening of people and equipment (muri) that entered our lives when John Krafcik joined our team from NUMMI, the Toyota/GM joint venture in California. The boys just wanted to share their enthusiasm and took the first opportunity at hand.

Our understanding at that time was that "muda, mura, muri" was a logical improvement sequence for lean thinkers.

We suggested starting with muda, which is simply any activity that is waste because it doesn't add value for the consumer but does consume resources. Conveniently, Taiichi Ohno at Toyota had long before provided a list of the seven types of muda that was an excellent guide for action. So we urged managers to immediately tackle overproduction (ahead of what the next customer needs) plus unnecessary waiting, conveyance, processing, inventory, motion, and correction.

An additional virtue of starting with muda was that many types could be removed from a narrow area without the need to coordinate with the larger organization or across firms. For example, machines could be moved together quickly in a kaizen exercise to create a cell -- to eliminate the muda of waiting, conveyance, inventory, and motion. And this could be done without disturbing (or getting the permission of) the broader production system. We believed that the progressive elimination of muda would pave the way for tackling mura and muri.

That was the theory. But now, 20 years later, it's striking to me how much effort we've expended on eliminating muda and how little attention we have given to mura and muri. As a case in point, the American car companies have just announced new incentive schemes that will sell a large number of vehicles over a brief period, running down excessive inventories. This will lead to additional overproduction at the factories, which will lead to more inventories, which will lead to more incentives, which will lead to...

Meanwhile this unevenness in sales and production that is quite unrelated to any desires being expressed by customers (a common type of mura) -- will undercut the efforts of the entire organization -- from sales to purchasing -- to eliminate muda (waste).

And in most companies we still see the mura of trying to "make the numbers" at the end of reporting periods. (Which are themselves completely arbitrary batches of time.) This causes sales to write too many orders toward the end of the period and production managers to go too fast in trying to fill them, leaving undone the routine tasks necessary to sustain long-term performance. This wave of orders -- causing equipment and

employees to work too hard as the finish line approaches -- creates the "overburden" of muri. This in turn leads to downtime, mistakes, and backflows -- the muda of waiting, correction, and conveyance. *The inevitable result is that mura creates muri that undercuts previous efforts to eliminate muda.*

In short, mura and muri are now the root causes of muda in many organizations. Even worse they put muda back that managers and operations teams have already eliminated once.

So I would give some different advice to the boys at MIT if they were preparing that T-shirt today. I would tell them to have it read "Mura, muri, muda." (Although the mother wouldn't be any less bewildered.) And I have the same advice for managers -- especially senior managers -- trying to create lean businesses:

Take a careful look at your mura and your muri as you start to tackle your muda. Ask why there should be any more variation in your activities than called for by customer behaviour. Then ask how the remaining, real variation in customer demand can be smoothed internally to stabilize your operations. Finally ask how overburdens on your equipment and people -- from whatever cause -- can be steadily eliminated.

This will be hard work and will require courage because it will often require you to rethink longstanding sales, management, and accounting practices that create the mura and muri. However, if you can eliminate mura and muri at the outset to create a stable environment for your sales, operations, and supply management teams, you will discover that muda can be removed much faster. And once removed it will stay removed.

Member's Questionnaire

The response to our questionnaire sent out in early June was disappointing -- in fact we only received six replies. So, many thanks to those six people -- we have taken note of your responses but we do really need more. In August, we will re-issue the questionnaire to all, including our new members, in the hope of getting a better response.

Lean Manufacturing or Lean Enterprise?

Does Lean apply only to manufacturing or is it applicable to other parts of our business? This is a question that is being asked with greater frequency... a question that you may be asking yourself. The short answer is no, in fact Lean applies to all areas of business. Why then does the perception exist that Lean only applies to the shop floor? A more detailed answer I believe, can be uncovered if we take a look at some of the history behind the term "Lean" as well as traditional continuous improvement activities.

Upon some reflection, I have come up with two theories. The first theory is this perception may be a result of terminology that the Lean community uses. Phrases like Lean Manufacturing, Lean Production and certainly the roots of what we call Lean today, the Toyota Production System, includes the words "manufacturing" and "production". So the question begs asking, have we (as Lean Practitioners) perpetuated the stereotype by simply using these industry terms?

To test this theory, I decided to run a search on Amazon.com. Although not scientific, I wanted to see if there was some evidence to support this theory. I conducted the search in the book section of the website under Business and Investing. The results were actually quite staggering. I first searched the word Lean that returned 157 hits. I then searched the term Lean Manufacturing that resulted in 43 549 hits! Wow, a 1:277 ratio! What does this information really tell us? Well simply that there is far more written about Lean Manufacturing than just Lean. While this is by no means conclusive, it certainly does support the theory and could possibly contribute to the perception that Lean does in fact apply only to manufacturing. After all, the authors that create the material we read associate "Lean" with "manufacturing", so why shouldn't we all?

The second theory in how we perceive the application of Lean lies in the way manufacturing firms have traditionally engaged in continuous improvement activities. Those who have spent any part of their career in manufacturing certainly can relate to the statement, "When we seek to improve we seek the shop floor."

Not that the shop floor isn't a viable option for improvement initiatives, it is, and should

be a consideration of any well thought out plan. But for those of us that have had exposure to Value Stream Mapping, we know that the shop floor accounts for only a portion of the total value stream lead-time, and usually a small portion.

Source: Chad Metcalf, Solutions Plus,
www.solutionplus.com

Thanks to Don Breakey – MCME Co-coordinator, Canada

Dan Jones monthly email

We are all naturally in favour of greater transparency. We think that if everyone could see the progress of production and levels of stock in the warehouse, as well as shipments and stocks in every warehouse along the supply chain, we should all be better off. We should be able to adjust our actions to changes elsewhere in real time. Add to this the Finance Director's dream of being able to control everything from a central point and you have the promise of RFID – radio tags on every product telling you where they are at any time.

But this dream could so easily turn into a nightmare. Just think what happens now. You have plenty of stock in your finished goods warehouse and yet you are always short of the one product the customer desperately needs. So you get on the phone to get production to change their plan and make some of this product in a hurry. Production time and efficiency is lost because you change the plan. People have to scurry round to chase materials and the production of other products is delayed. As a result you are short of those products and the cycle begins all over again.

In this situation it is easy to blame fickle customers for changing their minds. However there is a more insidious form of variation in orders that is encouraged by greater transparency. If your planners have visibility of all the stock in your finished goods warehouse what is their natural reaction to a run of demand for one product? They change their plan to try to restore stock levels, even if it does not breach the lower limit for stock of this product.

There is a natural human desire to try to adjust things to the average, even though the point of the warehouse is to absorb variations in demand so these waves do not

flow upstream. Why do they do this? Because experience tells them that they never know exactly when production will make another batch of this product – it may not happen for another month or more if the plan gets changed and the next production run gets rescheduled, as it almost certainly will. So better change the plan now rather than wait until you are out of stock.

Transparency will not actually solve this situation, and could make it a lot worse. Part of the answer is to set the upper and lower stock levels to absorb the variation in demand and stick to them, so these fluctuations are not passed upstream. The other answer is to move away from batch thinking in planning and production and begin to relate the rhythm of production more closely to demand, moving from producing every product once a month to twice a month, and then to every week and maybe twice a week and eventually every day.

Levelled orders creates the stability that is necessary to start the traditional lean journey in production – improving the capability and availability of each step so you can link them to create flow and then accelerate the rate of flow by improving the frequency. The end result is that production can actually make every product frequently and reliably.

But this is not the end of the story. Sorting out production alone is not enough – you must also sort out your planning logic and behaviour. Just as you eliminate big batches in production you must no longer batch information – it needs to be passed on without manipulation and released to production in small batches frequently. This probably means no longer using your MRP system for production and shipping instructions.

But it probably also means not letting your planners see the stock levels in the finished goods warehouse! We recently witnessed just such a situation – where planners were only alerted when stock levels breached the upper or lower limit. Even then they learnt not to react too quickly, as they knew that spikes and troughs in demand have a habit of going into reverse very quickly and production is anyhow going to replenish that product in the next period. Doing nothing proved to be the best course of action and eliminated most of the plan changes.

Imagine this story repeated at many points up the supply chain. Rapid replenishment turns out to be much more important in improving supply chain efficiency than transparency.

Lean – how lean is lean?

The recent AME-UK Lean conference was excellent timing as I had two months previously introduced a "Data gathering" exercise looking at the very basic fundamentals of effective machine and resource operability in order to introduce something like Lean. Since the conference I have extended the data gathering project to include processes, procedures and more particularly getting everyone (I mean everyone) to ask the question, "why do I do what I do the way that I do it?". Probably one of the most frightening questions that none of your respective employees ask themselves - especially your Managers.

It is often the Managers who are the most resistant to change in any form!!!! Shop floor staff, if you spend time to get to know and understand them, are far more open to change - in fact they want change, the very basics of succeeding in Lean, what ever it may mean!

My view of the world is probably very different from most. I entered Manufacturing only 14 months ago after having worked for over 25 years across five continents in a variety of Services sectors; Consulting, Finance, Software, Strategy, Business and Operational Development, amongst others. I was fed up living in planes and wanted to run my own company here in the UK. Someone said, UK Manufacturing is DEAD - Its not - its your workforce that kills the business - get them motivated! empowered! and get them to use their initiative! - yep they all have some of this - how to tap into is the trick!

My strategy is very simple, bring and introduce an entirely Services led culture to manufacturing in the UK. We recently re-launched ourselves and as our name suggests we are and will constantly look for better ways and means of doing the up most to ensure our competitiveness at all times.

Anyone interested in forming a sort of independent working group to share ideas, for that matter - "even results" then do let me know.

Happy Leaning!

Kindest Regards

Andrew Turner
Managing Director
TWM - Turner Workflow Manufacturing Ltd
Andrew.Turner@twm.gb.com

And a Second Message from Jim Womack

Recently I have heard from several members of the Lean Community wanting to know how to evaluate the lean efforts of their company. "How do we know how lean we are?" "What metrics should we use to measure our progress?" "Are we 'world-class' in terms of lean?" (Whatever 'world-class' is!) Because I've been getting calls of this type for years and they seem to keep coming, let me share my answer.

I always start by asking about business purpose: What do your customers want that you are not currently able to supply? Lower price (which is currently impossible because your costs are too high)? Better quality? More rapid response to orders? Better support once the product is delivered? A better and faster quotation process? More robust and flexible product designs?

And what does your business need to prosper? Higher margins? The ability rapidly to exploit new opportunities in order to grow? A new way truly to solve customer problems and move into new markets?

Business purpose always has these two aspects – what you need to do better to satisfy your customers and what you need to do better to survive and prosper as a business. Fortunately, addressing the former issue often solves the latter, but you must know precisely what the problem is as you start.

For example, when I visited Jefferson Pilot's policy writing operation for life insurance

several years ago, managers were able to tell me immediately about their business purpose. This was to reduce the time needed to write a policy from 30 days to as little as one day. This benefited both the insured and the agents selling policies, who only get their commission once the policy is delivered to the customer. More to the point for the company, superior service would cause independent agents to select Jefferson Pilot as the preferred insurance to sell and permit JP to grow sales rapidly without cutting prices in an otherwise stagnant market.

Yet I'm often amazed that there seems to be little or no connection between current lean projects and any clearly identified business purpose. Set-up reduction is being pursued because it's the right, lean thing to do. Pull systems are being installed because push is bad and pull is good. Meanwhile customers are no happier and the company is doing no better financially. So start with business need, defined both for your customer and your company, and ask about the gap between where you are and where you need to be.

Customers, of course, only care about their specific product, not about the average of all your products. So it's important to do this analysis by product families for specific products, summarizing the gaps in business needs your lean efforts must address.

With a simple statement of business purpose in hand, it's time to assess the process providing the value the customer is seeking. A process, as I use this term, is simply a value stream -- all of the actions required to go from start to finish in responding to a customer, plus the information controlling these actions. Remember that all value is the end result of some process and that processes can only produce what they are designed to produce -- never something better and often something worse.

Value-stream maps of the current state are the most useful tool for evaluating the state of any process. They should show all of the steps in the process and ask whether each step is valuable, capable, available, adequate, and flexible. They should also show whether value flows smoothly from one step to the next at the pull of the customer after appropriate levelling of demand.

But please note that the map must be interpreted in terms of business purpose. Not every step can be eliminated or fixed soon and many steps may be fine for present conditions even if they aren't completely lean. So work on the steps and issues that are relevant to the customer and the success of your business.

I know from personal experience how easy it is to get confused and pursue what might be called the voice of the lean professional rather than business purpose. When I was involved in a small bicycle company some years ago we welded and assembled eight bikes a day, shipped once a day, and reordered parts once a day. (This was a revolutionary advance from the previous state of the company.) But I was determined to be leaner than even Toyota. I urged that we build bikes in the exact sequence that orders were received, often changing over from one model to the next in a sequence of ABABC BAB.

This was deeply satisfying. But we only shipped and ordered once a day! The sequence AAABBBBC would have served our customers and our suppliers equally well and saved us five changeovers daily requiring human effort we badly needed for other purposes.

I had a similar experience when I visited a company where set-up time on a massive machine had been reduced from eight hours to five minutes. A big kaizen burst had been written on the current-state map next to this high set-up time step and a dramatic reduction seemed like a worthy goal to the improvement team. However, when I asked a few questions it developed that the machine only worked on a single part number and would never work on more than a single part number! Set-up reduction on this machine -- to reduce changeover times between part numbers -- was completely irrelevant to any business purpose, no matter how "lean" a five minute set-up sounded in theory. The lean team justified their course of action by pointing out how technically challenging the set-up reduction had been and how much everyone had learned for application in future projects. But that's exactly what I had thought at the bike company where every penny counted to support the current needs of the business. I'm now older and wiser.

Brilliant processes addressing business purpose don't just happen. They are created by teams led by some responsible person. And they are operated on a continuing basis by larger teams led by value-stream managers. So the next question to ask is about people: Does every important process in your company have someone responsible for continually evaluating that value stream in terms of business purpose? Is everyone touching the value stream actively engaged in operating it correctly and continually improving it to better address business purposes?

My formula for evaluating your lean efforts is therefore very simple: Examine your purpose, then your process, then your people. Note that this is completely different from the multiple "metrics" that members of the Lean Community often ask for: How many kaizen have been done? How much has lead time been reduced? How much inventory has been eliminated? And how do all of these compare with competitors or even with Toyota?

Good performance on any or all of these "lean" metrics may be a worthy goal but to turn them into abstract measures of "leanness" without reference to business purpose is a big mistake. At best they are functional measures for the lean improvement function. What's really needed is business measures for every value stream, measures developed and widely shared by a responsible value-stream leader and understood and supported by the entire value-stream team.

The following is from the Superfactory e-newsletter

Lean Six Sigma - An Oxymoron?

by Mike Micklewright

Think about it. Who would ever say that the process of training employees and embarking on a Six Sigma program within the company is a Lean effort? After all, the training usually consists of a very long lead time and is very expensive. And yet now, Lean Six Sigma is the catchphrase of

the decade and all training and consulting companies are jumping on the bandwagon, because it is the "IN" thing, and so many unsuspecting clients can be booked for so many consulting/training days.

OK, so it is understood that Lean Six Sigma is really meant to be Lean and Six Sigma and that Lean is not an adjective for Six Sigma, but by having the two adjacent to each other, it does look very ironic and it makes one think. Well, it made me think at least...

Read entire article at:

http://www.superfactory.com/articles/Micklewright_Lean_Oxymoron.htm

What is Kaizen?

Kaizen, by general definition, means 'rapid improvement'. It is, in fact, a Lean tool to help you change your process capability within a very short period of time using a minimum of capital.

In so doing you maximize your employee capability and involvement. *The whole concept of a Kaizen event is to make your process better at the end of the event than it was at the beginning.* The structure of such an event is very important to be able to effect the changes that you want to make on the shop floor. The first portion of that is to properly identify the challenge, or the goals of the team. This is done well in advance of the team formation. *It has been said that a problem well stated is more than half solved.* Understanding their responsibilities and empowerment will enable the team members to concentrate their efforts on the attainment of their goals.

The basic structure of every Kaizen event is the same. The team is trained in the concepts of Lean manufacturing and the role that Kaizen plays in Lean.

This is done to allow the participants to understand why they will be making changes to the existing processes as well as identifying the process by which they will make the changes.

The challenge is then introduced to the team. The goals that are set for any team should be

stretch goals that will challenge the team to address any and every potential cause for the existing situation. The team will then watch the existing process in operation.

While some of the team members will be very familiar with the process, others will not have that foreknowledge and will have to be walked through the system. During this initial process identification there will be, almost invariably, some recognition of some of the deficiencies of the existing process.

The team then does data collection and/or verification. This is important. The people involved must be able to measure against the existing standard to be able to identify the gains that they will make through the course of the event. They are now ready to identify potential problems within the existing process.

Done by brainstorming, all issues can be identified, categorized, prioritized and acted upon. The 'acting upon' is easily the most important aspect of Kaizen as a Lean tool. The team determines what changes would be required to improve the existing process and then *they make the changes*—as much as possible, by themselves.

The true value of Kaizen is in the changes that are implemented during the course of the blitz. Too often companies will assemble a team to determine how to correct a deficient process. That team will identify potential corrective actions and will make recommendations in that regard. Very often, this is as far as the process goes.

Sometimes companies already know what they'd have to do to improve but are stymied for any one of a number of reasons:

- We're too busy to change it right now;
- We don't have the time to shut the line down to change it;
- We tried that before and it didn't work;
- Charlie won't change how he does it;
- It costs too much to change; etc.

The next step is for the team to view the existing process. Because the team would normally be made up of people from several functional areas of the plant this is an important part of the learning process for them. This might be the first time some of the people have ever seen this particular process.

At this stage the 'area expert' gets to describe the existing process and identify why they do things in this manner right now. During this step it often becomes obvious to the team what some of the changes might be that would be necessary to improve the process. Team members are encouraged to speak with people in the area at this time to understand what they might feel are some of the challenges within the existing system.

The Kaizen team has both the responsibility and the authority (within predetermined criteria) that allows them to make the necessary changes that will improve the process. These changes can be as simple as cleaning the area or purchasing hand tools and putting them where they are needed. They could be as complex as moving machinery, developing new procedures or reallocating personnel to a different job function.

They complete the changes, run a trial that will validate the changes that they have made, and then they are able to establish a new standard from that time on. Training for each person who will work within the newly established procedures ensues so there will be no confusion as to the requirements of the workplace from this point on. A presentation to management that identifies all of the changes completes the event and then the company can identify and plan the next improvement potential.

The resulting improvements that can be gained from a Kaizen event can be dramatic and far-reaching. A 50% performance improvement is not uncommon with some of the additional benefits being cross training (in problem-solving), improved process knowledge and improved personal motivation for team members.

Source: *Bill Petch, Solutions Plus, EMC e-newsletter* www.emccanada.org
Thanks again to Don Breakey in Canada

Lean in Healthcare by Dan Jones

Healthcare is the next great industry to begin the lean journey. The existing model in which the hospital doctor acting as a skilled craftsperson effectively manages their own waiting list of patients, clinics and operations inside someone else's mass production

general hospital is reaching the end of the road. We need to create a vision of what it means to be a lean doctor, what is involved in running a lean health delivery organisation and how the context needs to change to help bring this about.

Recent experience in the UK has shown the problem can not be resolved by spending more money or by increasing capacity and staff. Better outcomes for patients, more satisfying working conditions for staff and lower costs to the tax payer (or members of private healthcare schemes) can only come from fundamentally redesigning the underlying processes for delivering healthcare.

The most important difference between healthcare (and many services) and manufacturing is that the patient is present throughout most of the process, indeed the patient is the product and their problem is the purpose of the activity. If you are a manufacturer just think how different your life would be if your product could experience your process and tell you what it was like!

So healthcare is actually two parallel processes that have to be synchronised: the patient process (which begins and ends at home), the diagnostic and treatment process which mirrors it (in GPs surgeries and hospitals) and several enabling support processes like radiology, pathology, pharmacy, supplies, bed management and theatres.

Healthcare has traditionally focused on the patient doctor interaction and ignored the rest of the patient journey - on waiting lists, searching for a place to park, sitting in queues etc. The introduction of patient choice in the UK is beginning to focus attention on reducing these non value creating steps. Our lean experience tells us that these are also symptoms of lots of wasted time and effort in the diagnostic and treatment processes and in the support processes.

The second characteristic is the huge variety of patients with different conditions coming into the surgery or the hospital. To make sense of this we need to see the different product flows through the healthcare system and begin to manage them separately. What turns out to be critical in defining these flows through a hospital is the length of stay (or the rhythm or takt time in lean language) –

whether patients go home that day, stay for a day or two, stay for more than a few days, or whether they need long term care – and then whether they need surgery or other specialist treatments or not (what process routes they follow).

Like manufacturing there is a common assumption that demand is volatile and unpredictable. Experiments with open access to GP surgeries and analysis of people coming into Accident and Emergency Departments shows that demand is actually quite stable and predictable. The greatest variation is in elective work that has been sitting in waiting lists and scheduled and rescheduled many times. Queues (just like inventories) and the scheduling and planning that goes with them actually create significant and unnecessary extra costs throughout the system. The underlying pattern of demand for elective work is also relatively stable.

Having defined the flows (value streams) there is still a strong belief that every patient is different – and cannot be treated like cars going down a production line. However if we sieve the types of problems being treated we quickly see that in each value stream a few problems account for the majority of the work. Once we create a regular flow of patients with these common problems we can actually free up more time for treating the patients with more unusual problems. Indeed because we have a more predictable process we are better able to tell patients what to expect, and even involve them in managing it.

To create steady flow means starting at the end of the value stream – with discharge! If you are not discharging patients as fast as patients are arriving then the process inevitably gums up. So discharge has to pull patients into beds and through theatres and through admission. This means much greater cooperation between departments, more standard procedures, synchronised test cycles and ward rounds and much clearer and unambiguous handoffs. This is where the lean foundations such as standard work, 5S and problem solving can initially help to improve quality and later as activities are linked to increase the number of patients that can flow through the system.

We are still at the beginning of the lean journey in healthcare, as courageous pioneers figure out how to do all this in practice. Once we have a better understanding of how lean can transform existing healthcare delivery organisations it will be time to look beyond at innovative new ways of delivering care and at the design of right-sized tools to facilitate them.

In the end healthcare and manufacturing are not so very different. The language and the sequence of changes may differ, but the lean principles work everywhere. Some senior clinicians and chief executives have recently said that “lean can save healthcare”. Manufacturing and service firms and lean experts can help this cause by sharing their knowledge and their experience of lean with local healthcare organisations.