

At their latest meeting, North Lincolnshire AME heard first hand how lean is Driving Change Throughout the Airforce and we have a report from their meeting. We then have 'one of those things that seems to go around' just to show how lean applies! We have Jim Womack and Dan Jones' monthly news letters and a couple of interesting (I hope) articles from Manufacturer.com's newsletter. Spend some time reading Richard Kunst's article (Richard leads the Lean Consortium in Canada) on the Power of Daily Report Outs. We also have an article on lean accounting – too many of us are still in the world of absorbing overhead! Finally let us know if there is any news from YOUR business that we can share.

Applying Lean to the Harrier

You may recall that our first article in the first AME-UK newsletter recapped on the presentation given at the Toronto Conference on the implementation of lean to the Harrier service organisation. A meeting of the North Lincolnshire group allows us to get up to date!

The regional AME meeting was held at Kimberly Clark's superb and impressive facility on Humberside and was attended by approximately 30 people. Wing Commander Mike Stammers was the guest speaker.

He outlined the long history of defence cuts leading to a significant reorganisation of the armed services and their support. Under this programme, developing people and developing supplier partnerships were critical for success.

Applying lean to the Harrier was the first application of lean in the armed services and based on the Harrier success similar programmes have been rolled out in areas – the Tornado, tanks, helicopters etc.

Major servicing of the harrier could take six months, using traditional methods and if parts were required that were not available, significantly longer. There was poor visibility of problems and often the need for a replacement part was not identified until it was needed. Relationships with the main suppliers were often adversarial.



Based on successes at Boeing, a team from the RAF visited the USA and then started to implement lean with Simpler Consultants. A typical rapid improvement event would take seven weeks after which real results could be seen.

The successes are difficult to measure in pounds sterling, but are huge in their magnitude- planes are only out of service for sixty days – the pulse line has



six stations with a takt time of ten days. This means that a larger number of planes are available for use and that servicing can now be carried on a much more reliable schedule.

The keys to success were:-

- the developing of team working,
- the use of visual management systems
- involving their main suppliers Rolls Royce and BAE Systems in their improvement events.
- developing standard operating procedures

"Lean is about challenging rules and traditions but never do anything to compromise safety."

Mike Stammers explained that the concepts of lean did not only apply to the servicing of the actual plane – they have been applied to the engine with a takt time 4 days and are being applied to all the support areas including the office and administration areas. He also stressed that there was an environment of ongoing continuous improvement.

After Mike's presentation there were many question several of which were involved with changing culture.

Note – those of us how have a background connected with the automotive industry are obsessed with having a takt time in seconds. Here is a great example where seconds would just not be suitable. May be at some time the RAF will reduce it to hours, but seconds are still a long way a way!

Baked potatoes –Toyota versus Typical plc

How a Toyota employee bakes a potato:

- * Preheat new, high-quality oven to 350 F
- * Insert a 1.0 lb Idaho potato
- * Go do something productive for 45 minutes
- * Check for doneness, then remove perfectly baked potato from oven and serve

How a Typical plc employee bakes a potato:

- * Conduct market test with suppliers in Mexico, Brazil, and Turkistan to supply 0.75 lb potatoes, choose lowest cost supplier with best Wings tickets.
- * Change to incumbent supplier of Idaho potatoes, insist they meet Turkistan pricing with 3% annual price reductions.
- * Upgrade to 1.0 lb potato, insist supplier erred by pricing for 0.75 lbs as instructed when he knows Toyota uses 1.0 lb potatoes.
- * Instruct potato supplier to preheat the oven to 350F
- * Demand that the supplier show you how he turned the dial to reach 350 F, and have him come up with documentation from the oven manufacturer proving that it was calibrated properly.
- * Review documentation, then have supplier check the temperature using a sophisticated temperature probe.
- * Direct supplier to insert potato and set timer for 45 minutes.
- * Have supplier open oven to prove potato has been installed correctly, and request a free study proving that 45 minutes is the ideal time to bake a potato of this size and variability due to orientation within the oven.
- * Request a Six Sigma Study showing variable cook times for various potato sizes and orientations.
- * Check potato for doneness after 10 minutes
- * Check potato for doneness after 11 minutes
- * Check potato for doneness after 12 minutes
- * Become impatient with supplier (why is this simple potato taking so long to bake?). Demand status reports every five minutes.

* Conduct Value Engineering session and new market test.

* Change to 0.9 lb potato because customers will only notice if potato weight is reduced to 0.85 lb.

* Check potato for doneness after 15 minutes.

* After 35 minutes, conclude that potato is nearing completion. Pass through Gate review reporting all Green status.

* Congratulate supplier, then update your boss on all the great work you've done, despite having to work with such an uncooperative supplier.

* Remove potato from oven after 40 minutes of baking, as a cost save without loss of function or quality versus the original 45 minute baking time.

* Serve potato.

* Wonder aloud what on earth those Japanese folks are doing over there to make such good, low-cost baked potatoes that people seem to like better than a Typical potato.

Dan Jones' Latest Newsletter

The other day I began a speech to a leading supplier of medical devices by congratulating them on the absolutely level demand for their products from existing users and on the steady growth in the number of users. The audience laughed when I asked whether this meant they could plan ahead and never needed to change their plans at the last moment! Like most companies they change their plans every day, and sometimes several times a day.

They nodded in agreement that they and not their customers are responsible for the chaos these short term plan changes cause throughout their extended production and distribution system. The good news is that they ought to be able to do something about it themselves. The bad news is that if their customers knew how much extra cost this chaos causes they would be very unwilling to pay for it! The truth is that they, and many others, are still struggling to understand and deal with the underlying causes of the chaos they are dealing with. It is in fact an obstacle to their taking action to go lean.

The chaos actually begins at the customer interface. In this case the product is part of a diagnosis and monitoring process to manage a medical chronic condition. Mapping the consumption process to

obtain repeat supplies will reveal opportunities for saving wasted time for the patient and for the doctor.

Mapping the way the product is ordered and delivered will reveal further opportunities for cost savings and for improving the prospect of your product being chosen rather than those of your competitors. Frequent replenishment will reduce inventories and improve availability while at the same time smoothing order signals. This analysis is too important to be delegated to a distributor or wholesaler.

This chaos is then passed up the value stream towards production. In this case it takes over 200 days to reach the doctor through several decision points. Why? I am always struck by how little production people know about what happens down the distribution chain. They do not know how long the chain is, what happens closer to customers and how well the overall system fulfils customer demand. The shocking thing is that it is always longer than you imagine and levels of fulfilment from the customer's perspective are surprisingly low, despite all the inventories in between. This is a sure sign that no one is responsible for redesigning the end-to-end value stream.

But the real culprit that is causing most of the chaos in production is the fact that our planning systems are driven by batch logic (based on economic order quantities) which depends on perfect information. We also believe we must plan every event for every product in the same way. Every time things go wrong we make a new plan and when this does not work we change it again and again. As a result fire-fighting is endemic and production efficiencies are significantly degraded.

A way out of this dilemma is to recognise the damage being done by this batch logic and to learn to see that you can in fact quickly create stability and flow for the few high volume products which account for much of your output. These need to be managed separately from the tail of build-to-order products with low volume and unpredictable demand.

Begin by creating a replenishment pull for these high volume products, absorbing demand variation in a finished goods buffer stock and initially producing them on a fixed volume, fixed sequence cycle. This creates the stability necessary to start down the lean virtuous circle of standard work and continuous improvement. It also allows much faster progress in improving equipment availability, shorter changeover times and integrating production steps into a continuous flow. Over time speed up the cycle, reduce batch sizes and incorporate more products into this flow, and as your capabilities

improve vary the volume and the sequence to more closely mirror daily demand.

This path very quickly leads to increased output, near perfect on-time deliveries, much higher employee involvement in continuous improvement and it can be replicated up and down the value stream. You are no longer producing to forecast and no longer need so many planners to rejig the schedule for most of your production. And you will discover that true responsiveness comes from establishing stability and increasing the rhythm throughout the value stream, not from changing plans all the time. Chaos is not inevitable and can be conquered.

We have seen this work in so many different environments where you have a complex mix of products with variable work content or production volumes; from separating different types of service jobs in a car service shop to dealing with different types of insurance claims to separating simple routine from infrequent and difficult operations through hospital theatres. Ian Glenday has now written a workbook to enable everyone to try out this method, called Breaking Through to Flow. This is our first LEA publication and I am confident it will help many of you take the next leap on your lean journey.

Manufacturers spend more on training

[Manufacturing News](#), Source : TheManufacturer.com
Published : 23 Jan 2006 9:28

Manufacturers are spending more on training in the hopes of improving productivity.

A skills survey published today by the manufacturers' organisation EEF says there is widespread acceptance of the link between a more highly skilled workforce and improved performance, with two thirds of companies saying improving productivity was the main reason for increasing training.

The survey also showed that firms had increased their training spend over the previous 12 months and were planning to do so over the coming year, despite their margins being under intense pressure.

There was good news too for the Investors in People scheme - a framework for linking training to the business strategy and communicating this to employees. Of those companies with the Investors in People standard, almost two thirds had seen an improvement in productivity in the last year compared to only 20 per cent without the standard. In addition, just under 30 per cent of companies with

liP had improved their profitability compared to just over 10 per cent without.

The survey also showed wide variation by company size with only 10 per cent of small and medium size companies adopting the standard compared to almost a third of larger companies; figures that suggest there is a renewed need to promote the benefits of Investors in People more widely.

"This report demonstrates that increasing the amount spent on training is not enough on its own to improve performance. The companies that are able to steal a march on their competitors are those with a business culture which clearly aligns their investment in skills and training to their overall business goals," said EEF director general, Martin Temple.

UK-Australia job exchange facilitates engineers moving countries

Published on 31 January 2006
IEE Electronic news letter

A jobs exchange to help engineers and scientists move between the UK and Australia has been set up by professional unions from both countries.

The joint venture – called ETM-UK – is based in Surrey and is the creation of Prospect, the union for professionals in the UK, and APESMA, its Australian equivalent.

High demand and shortfalls of engineers in sectors such as rail, road, mining, defence materials and electricity triggered the idea for the new company, said Paul Noon, general secretary of Prospect. "Designed and structured as a commercial recruitment consultancy, ETM-UK will have access to more than 500,000 professionals via its memberships and affiliations. It will give members in both countries the chance to make a new life in a new country, using the skills they already possess."

Geoff De Lacy, one of ETM's senior directors, will manage the UK operation from Chertsey, also working out of Prospect headquarters in Waterloo, London. He says that they have already received a query for 80 transport engineers to work for New South Wales Rail and have had interest from both the Australian government and companies such as Atkins and Arup for British engineers. British

qualifications are held in high regard in Australia and fully recognised by the authorities.

John Vines, general secretary of APESMA, said: "The expertise resident in the UK is much sought after by Australian companies and government bodies. From enquiries we have received, we know there are many engineers in both the UK and Australia who would happily work out of the other country. We hope to create a pipeline for young professionals and if it works out we shall expand ETM-UK into mainland Europe."

ETM was founded by APESMA and has operated successfully as a job placement company in Australia for a number of years. Geoff De Lacy, one of ETM's senior directors, will manage the UK operation from Chertsey, also working out of Prospect headquarters in Waterloo, London.

Interested engineers should get in touch with Geoff De Lacy via email: geoff.delacy@etm-uk.com or visit the website at www.etm-uk.com

Blog

<http://leanreflect.blogspot.com>. Will take you to a new blog on 'lean' which is compiled by Karen Wilhelm who is the the editor of the Society of Manufacturing Engineers 'Lean Directions' electronic newsletter.

CBI says Government is failing to support small firms

Microsoft Be Central Business News
6 February 2006

The Confederation of British Industry (CBI) has criticised the Government's small business support network - saying despite a budget of £8 billion per year, it provides conflicting, confusing and inconsistent support to small firms, writes Tom Whitney.

According to a CBI report 'Improving government services for small and growing businesses,' small firms are failing to use publicly-funded schemes, because they do not know what support is available or are overwhelmed by the amount of advice on offer.

"There are more than 2,650 government-supported schemes available, which is a daunting prospect for small businesses trying to find the information they need," said CBI spokesman Nick Boja.

"While the Government has been keen to set up the Business Link network as a gateway to all this information, despite receiving £140 million investment per year, only one in seven firms has used it. The Government needs to identify which schemes are actually working and focus its resources on them," Boja added.

Ian McCafferty, the CBI's chief economic advisor added: "Quality business support is proven to boost survival and growth prospects. However, there are too many overlapping, confusing and inconsistent government schemes.

"With £8 billion spent a year on services to small businesses they should be exemplary but this is not the case," said McCafferty. "Action is needed, not to reduce the budget, but to make sure it is effectively used."

Responding to the criticism, a spokesman for the Government's Small Business Service (SBS) said: "We agree with the CBI that there is a need to simplify government support to business.

"A major programme of simplification is being launched. The programme aims to streamline and simplify business support while improving the level of service to businesses and delivering enhanced economic impact."

However, the spokesman added that the Government's Business Link service now helps more than double the number of businesses it did four years ago. "According to our research, Business Link customers are increasingly satisfied with the service they receive," said the spokesman. "Customer satisfaction was 90 per cent as of September 2005 - a rise of 9.5 per cent since 2001.

"In addition, in the last 12 months, Business Link has helped 680,000 firms - 510,000 of which were existing businesses," he added.

Jim Womack's Latest Newsletter

In the fall of 1990, Dan Jones, Dan Roos, and I co-authored *The Machine That Changed the World*, our description of lean enterprise. On page 253 we forecast that 1991 or 1992 would be the moment of crisis as the full power of lean (represented by Toyota) threatened to topple mass production (defended by General Motors). And in 1992 GM nearly did go bankrupt.

However, as usually happens with forecasts, we were off in our timing. The moment of truth was

actually delayed 15 years. What now seems certain is that Toyota will pass GM in 2006 to become the world's largest industrial enterprise and that GM and Ford will undergo a profound transformation, whether led by current managers or by someone else.

Recently, as I've listened to industry executives and the media grapple with this momentous event, I've been struck by the manifest irrelevance of most efforts to find the root cause. The crisis is not due to misaligned currencies, subsidies from "Japan, Inc.", or spiking energy prices (although the latter has affected the precise timing). And it is not a simple case of too many retirees for the present workforce at GM and Ford to support. (Indeed, this gets cause and effect backwards: GM and Ford have too many North American retirees for current workers to support because both companies have lost half of their North American market share over the past 25 years and have hired hardly any new workers in a quarter century.) *The root cause of the crisis lies in a clash of two business systems, and the better system is winning.*

As we pointed out in *Machine* – devoting a chapter to each point – a lean enterprise consists of five elements: a product development process, a supplier management process, a customer management process, an overarching enterprise management process, and a production process from order to fulfilment. And each of these processes is superior to the processes employed for the same tasks at a mass producer.

The lean product development process, as used at Toyota, permits a company to produce vehicles with fewer hours of engineering and fewer months of development time with fewer defects while investing less capital and making customers happier. The key tools are the chief engineer concept, concurrent set-based design (which is simultaneous as well), and high speed prototyping with trade off curves so that re-invention is avoided. (It's not an accident that Toyota was able to hear the voice of the customer first with regard to hybrids or that the Prius – with more new technology than any vehicle in a generation – was developed very quickly and was recently reported by *Consumer Reports* to be the most reliable vehicle sold in the U.S. These were predictable outcomes of the lean development process.)

Lean supplier management creates a small number of highly capable suppliers in long-term partnership with their customers. Suppliers work to demanding customer targets for cost, quality, delivery reliability, and new technology and achieve these targets by *jointly examining the development and production process they share with their customers*. The lean approach has dramatic and predictable benefits, but

if GM and Ford even understand these concepts, their perceived need to save themselves by bleeding their suppliers has made implementation impossible.

A lean customer management system builds customers for life while reducing distribution costs by working backwards from the customer's desired experience and forwards from the production system's needs. In fact, although Toyota has deployed these concepts brilliantly in Japan, it has stumbled so far in applying them in the U.S. Its Lexus dealing system has created a very high level of customer satisfaction but at substantial cost. Achieving high satisfaction *and* low cost is a key topic in my and Dan Jones's recently released *Lean Solutions* book and provides a terrific opportunity for GM and Ford to move ahead of Toyota by using its own methods. Or, if they fail, this could be the final act in the tragedy as Toyota finally makes its retailers lean in the next few years, the way it transformed its service parts operations in the 1990s.

Finally, a lean management system involves managers at every level posing the key problems that need to be solved and asking the teams they lead to develop and implement the answers. This practice of asking the correct questions rather than providing the correct answers (which high-level bosses can never know in any case) is perhaps the starkest contrast between lean thinking and orthodox mass production and the hardest to implement.

Putting these four elements together, it's not surprising that lean exemplar Toyota is steadily advancing, as recovering mass-producers GM and Ford steadily retreat despite adopting parts of the lean system. And note that I have not even mentioned the fifth element of a lean enterprise – production operations – because GM and Ford are now nearly competitive on this dimension in terms of labour productivity. The root cause of the current crisis is not in the factory. It is in the rest of the value creation system. What must happen soon for GM and Ford to resolve this crisis?

Rewrite the social contract. As Toyota learned when it went bankrupt in 1950 and fired a quarter of its workforce, no company in a truly competitive

industry can make promises to employees (or retirees) that are not sustainable in the market. So Toyota made a deal: Right size the company at one go, tie compensation and benefits to market conditions (with bonuses of all employees geared to profits and with defined-contribution pensions), and try very hard to defend every employee willing to embrace the new value creation system. Over more than 50 years – by carefully following these

rules – Toyota has been able to steadily increase its competitiveness while defending its employees. But everyone at Toyota understands that continuing employment with good compensation depends on continually creating more value per employee. That's why everyone worries so much and thinks so much about continually improving every process. "Life-time employment" is a consequence of creating value, not a pre-condition or an entitlement.

Introduce all of the elements of lean enterprise. This includes product development, supplier management, customer management, and policy management. These practices permit Toyota to get the right products to market first in North America with substantially higher selling prices within each segment and with substantially lower costs. This is even though its employees in North America are being paid wages and benefits comparable to GM and Ford – except for unsustainable early-retirement plans and defined-benefit pensions – and its suppliers make adequate margins as well.

Simplify market offerings. GM and Ford do have a special problem, never faced by Toyota, in their plethora of brands. But the solution actually lies in GM's past. President Alfred Sloan worked miracles in the early 1920s by rationalizing the welter of overlapping and immemorable companies and products he inherited from founder Billy Durant. But where is the new Alfred Sloan who can either explain what Buick, Pontiac, Saab, Saturn, and GMC are (and Mercury, Mazda and Jaguar at Ford), or get rid of brands only adding costs? Toyota's North American lineup of Scion – a buzzy, "what's new?" brand, Toyota – a bread-and-butter brand for people who love great, hassle-free transportation but actually don't care much about cars, and Lexus – for those needing status or image with their transportation – comprises as many brands as a modern-day car company can support.

What's the prospect if lean production is uniformly embraced? After a moment of truth – involving employees, retirees, suppliers, and investors – followed by dramatic restructuring at each company, equilibrium could return to this massive industry. GM and Ford could survive as independent companies, although considerably smaller, and Toyota would find that it needs to work even harder to improve every process as competitors embrace lean thinking. And that would be good for the whole world.

But what will actually happen? That's for the managers, employees, and investors at GM and Ford to decide and decide soon. Dan and I learned in 1990 that lean thinking provides a great way to identify the root cause of the problem but that Lean Thinkers shouldn't put any confidence in forecasts!

The Power of Daily Report-Outs

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Pick up any book about the virtues of the Toyota Production System (TPS) and it will immediately talk about "going to the gemba," visiting the shop floor. This is probably the most powerful hidden attribute of TPS. When applied correctly, it forms the basis of standardized work for leaders and quickly allows them to compartmentalize the noise that can create disturbances to flow.



In many manufacturing organizations, the daily production meeting becomes religious -- managers and supervisors pray for no material shortages, quality impacts or labor problems. Then they seek forgiveness for not meeting goals established at the previous day's meeting. A meeting like this can be the biggest waste of the day, especially since it removes leaders from the gemba, where they are needed the most.

One antidote to this waste is to establish report-out boards (whiteboards) in strategic locations throughout your plant. Follow your value stream, beginning with the final customer and working back to the receipt of raw materials. Your reporting should cover the four areas that create "disturbances to flow" -- health and safety, quality, production, and continuous improvement.

Then, the management team assembles daily to walk the standardized route to view the report-outs and deal with any issues that could create a disturbance to flow for the coming 24 hours. The team should also review the results of the previous 24 hours to make certain that plans and targets were met. If a member of management is not able to attend, an alternate who is empowered to make decisions should be there.

Daily Report-Out Questions

HEALTH & SAFETY

- Any incidents?
- Any concerns
- All employees present?
- What will be the impact of absentees?

PRODUCTION

- Any production concerns?
- Do you have enough material?
- All equipment in good working order?
- Did you meet yesterday's target?
- Will you meet today's target?
- If not, what do we need to do?

QUALITY

- Any quality alerts?
- Any quality concerns?
- How many quality spills yesterday, and their magnitude?
- Is there anything you need to help you do your job better today?



CONTINUOUS IMPROVEMENT

- What is your five-minute 5S task for today?
- What can you do to find one second of savings in an operation today?
- What can we work on to better improve our workplace today?

The overall review of issues and results requires just three questions:-

What worked well (WWW) ... keep doing it!

What did not work well (WDWW) ... stop doing it!

What do we need to do differently (WDD) ... change or enhance the process!

With practice and the use of precision speaking a report-out can be completed within 10 minutes. The power of having the entire management team in attendance is that decisions can be made on the shop floor. There is no need to schedule another meeting, page the person or hope that someone else will solve the problem. Once this communication process is entrenched, it is easy to add other reporting exercises.

To get the leadership team away from "aisle management," have employees do mini-report-outs on suggestions they have implemented. This is an opportunity to give them recognition for their contributions. The increased visibility of management on the shop floor demonstrates their commitment to the well-being of employees, and the vision to remain competitive. Try it ... you will like it!

This article was first published in the SME's on line newsletter *Lean Directions* www.sme.org/lean

About turn

[Manufacturing in Action](#), Source : The Manufacturer
Published : January 2006

Edgar Allen is a niche manufacturer of railway crossings that has wholly re-invented itself. Colin Murphy, finance director and Bob Laird, managing director talked to Jayne Flannery about the upturn in the company's fortunes

What does a 100 year old general foundry do when it is forced to acknowledge that times have changed? As the 20th century drew to a close, the foundry of Edgar Allen at West Lothian in Scotland was in crisis. "We could see some years back that our traditional markets were under threat from low cost steel imports," said Colin Murphy, finance director. "Foundries across western Europe were closing on almost a weekly basis. Carrying on with our traditional business of selling a semi-finished steel product for a score of applications was not an option."

For a number of years, Edgar Allen had dabbled with railway contracts. Murphy [& Laird] had the commercial acumen and talent for lateral thinking to see that although the steel industry had reached a critical point, huge opportunities were opening up elsewhere.

"Although our traditional market was in decline, we could see that there was worldwide investment in railway networks. Environmental pressures and the

need to keep cars off the roads were compelling governments to take rail transport more seriously. Simultaneously, we also saw that we had a particular set of skills that could be applied in that market," he said.

Bob Laird, managing director took up the story. "We realised that we could not survive selling an unfinished product for someone else to finish. We had to move upstream to where we could add more value," he said. The answer was to take on a manufacturing unit in Sheffield, effectively re-inventing Edgar Allen as a vertically integrated manufacturer of finished railway turnouts. From the outset, it was seen as a niche opportunity. "We exited other market sectors and substantially reduced our customer base our other customers in order to channel all our energies in that particular market. We were determined to be the world leader in that particular niche," he added.

The foundry was left to concentrate on one specific product, whereas before there had been up to 100. "We realised that there are very few people worldwide capable of producing steel manganese castings to the standard that we can achieve," said Murphy. "These are highly complex castings and there is no other manufacturer in the UK with our capability. The castings are unusually long and thin and can measure up to 12 metres. It requires a unique set of technical capabilities," he added.

The decision for the company to undergo a radical shift in focus did not have a foregone conclusion. Inevitably, there was an element of risk and the changeover required significant capital investment in new plant. New CNC machining equipment was needed and the company also had to purchase shot blasting equipment and a new heat treatment facility.

Perhaps most important of all, Edgar Allen had to re-train its workforce and help them to understand the rationale of the shift. "Our workforce was used to seeing 100 different products leaving the plant," said Laird. "They thought this level of diversity was a good thing, despite the fact that we were hardly making any money out of any of them. There was a great deal of nervousness when we decided to focus on just one. People just didn't see at first how the level of focus we wanted on a single product could be a good thing for the company.

"Yet we are very good at what we do because from the outset, we have concentrated and channelled all our energies in just one direction," continued Murphy. "All our quality systems, manufacturing and financial reporting systems, for example, have been geared towards creating a world class capability in this one area.

"Resources have also been channelled into a significant R&D effort to develop our portfolio of products and services and to match or exceed our customer's requirements. Without the focus on a narrower product range this would not have been possible."

The transformation of Edgar Allen began in 2000. At that time the company had a turnover of £11 million. When trading figures for the current financial year are released, Murphy expects to see a turnover of £28 million. Moreover, the added value element means that margins will be better than could ever have been imagined when the company was a run of the mill foundry.

Edgar Allen is now firmly positioned as one of the UK rail network's premier turnout suppliers. Network Rail is a major customer, but there is also a growing export base, supplying overseas networks as distant as New Zealand. Edgar Allen is also a substantial supplier of crossings to the US market via its partner Progress Rail. It is no understatement to say that Edgar Allen has gained a new lease of life. Other beleaguered manufacturers should let themselves be inspired.

Keeping score with lean accounting cost management

By Jerry Solomon Jerry Solomon is the author of the Shingo Prize-winning book, "Who's Counting," and VP of Operations for MarquipWardUnited in Hunt Valley, MD, a leading manufacturer of high-speed equipment for the worldwide corrugated paperboard and folding carton industry.

Lean accounting cost management, what people refer to as "lean accounting," is a different way of accounting for operations in manufacturing companies. For the people changing physical operations in the plant, lean cost management provides the tools that help them understand what's really going on.

Traditional accounting is a foreign language to the folks in the shop who have to use the information to improve. How can they improve something if they don't understand it? We have to make accounting information easy to understand, actionable, and timely.

If you go to a football game, you always know the score, how much time is left in the game, and what yard line you're on. Imagine if you went to a game and you didn't know any of those things. It would be

pretty frustrating. In comparison, that's what traditional accounting provides the folks who have to use the information. They don't know the score; they don't know where they are; and they don't clearly understand the goals. Yet we give them numbers at the end of the month and tell them to make them better.

At MarquipWardUnited, we want people to understand how to keep score. We use a format we call the "box score." We determine the operational elements in the value stream that we want to track. Those are shown in the top half of the scorecard. In the bottom half we show financial performance. This includes the usual things: sales per employee, inventory turns, variable margin, and gross margin, for example.

Operational items are shown on top because we feel that's where people have to focus. If they improve the operational scorecard, the financial scorecard will get better. The flip side is, if we're making improvements on the operational side and the financial picture isn't getting better, we know we picked the wrong operational parameters.

Over time we have taken things off the operational scorecard because we saw an operation wasn't needed. An operation can be a big bottleneck, and after questioning why we put a product through that process, we decided we didn't need the step in the first place.

Tracking direct and indirect labor is something we move away from. We stopped recording labor hours for job costing. We have one payroll category: our work force. We want to measure our total labor content.

A traditional profit and loss (P&L) statement would show sales, cost of sales based on standard costing, labor variance, material variance, overhead variance, and labor rate variance. The people who need the information can't act on that.

We changed the format of our income statements. We made them simple. For each value stream, all of the payroll expense is in one bucket called processing costs. There is another bucket for all of our variable costs. We exclude elements outside the value stream, like property taxes or insurance.

Now the income statements allow the folks to clearly see and understand what was spent on labor, how many units were produced, and the labor cost per unit. It's pretty easy.

We clearly show the variable cost categories. Then we look at the variable costs each month and decide which cost categories we should focus on for

improvement.

Fixed costs are generally out of the control of the folks in the value stream, so we don't ask them to give them much attention. However, we do make people aware of them.

We feel the scorecard helps people understand the business and see the fruits of their efforts manifested in better results. People want to know what they can do to make the business better, and link what they do to the financial results.

Many things happen when people work as a team, involved, questioning everything, and understanding the cost of everything. You have an engaged group, an entrepreneurial team improving operations.

Lean accounting is going to give people ownership. We want to make a whole bunch of mini-businesses and entrepreneurs in the shop who can improve the business. If we simplify accounting it's going to help.

I tell accounting people to get involved, understand what is going on in the shop, and make changes along with those made there. In so doing, you learn a lot more about the product, how it was manufactured, and its actual costs. It's an enlightening experience.

Excuses come in many different flavors and varieties. People say they can't do lean accounting as it's not GAAP (generally accepted accounting principles) reporting.

I can remember the time we were changing how we value inventory, and I was told, "You can't do that." I went to the accountant's bookshelf, pulled off the book, pointed to the page and asked, "Where does it say we have to account for inventory at the end item level?" The book said inventory has to be fairly valued. That's all. As long as we fairly value inventory in the lean environment it's not a problem.

Another obstacle is raised by folks who say, "Our auditors won't accept it." Yet there are a lot of world-class companies being audited by Big 4 accounting firms, including Toyota. Auditors will accept lean accounting. The key is to get your auditing firm involved early, explaining what you're doing, and educating them along the way.

People often don't want to change; we have to make them realize that change is how companies will be able to compete effectively in the global economy. So my advice for accountants is to stop looking at why we can't do it and start looking at why we must do it. Without the actionable information lean cost management provides the folks in the plant, we can't continually reduce costs. And it's a sure bet our competitors will not idly stand

by as we contemplate whether or not to change.

Interviews with Jerry Solomon are included in SME's video, [Lean Accounting](#). This article was first published in the SME's on line newsletter Lean Directions www.sme.org/lean

First US engine fitted to A380

[Manufacturing News](#), Source : TheManufacturer.com
Published : 07 Feb 2006 13:32

The first engine from the American jet engine alliance between General Electric and Pratt & Whitney has been fitted to an Airbus' A380 'super jumbo'.

An Engine Alliance GP7200 engine has been installed on the fifth A380 test aircraft, at Airbus' final assembly line in Toulouse, France. Once all four engines are installed in March the aircraft will join the flight test programme as part of the certification campaign by mid-2006.

The four GP7200 engines arrived in Toulouse from Middletown, Connecticut in the United States in September last year and the first has since been fitted with heavy test instrumentation to allow the measurement of some 1000 parameters during flight test.

A380 customers are offered a choice between the Rolls-Royce Trent 900 and the Engine Alliance GP7200 engine. Among the A380 customers who have chosen the Engine Alliance engines are Air France, Emirates, FedEx, ILFC and Korean Air.

To-date, three Rolls Royce powered A380 have taken to the air and have accumulated around 245 flights and 880-flight hours, yielded good results.

The first two aircraft have been successfully carrying out trials including aerodynamics, low speed and flight vibration tests. Cold weather trials are due to take place in Canada shortly, where the aircraft has to prove full functionality under extreme weather conditions of up to minus 40 degrees Celsius. The high altitude campaign successfully took place in Colombia earlier this month while the hot weather campaign will begin in the summer.

Meanwhile, the third A380 has been flown to Hamburg, Germany, to be fitted out with the full cabin. It will be joined by a fourth aircraft which will also undergo cabin and noise tests, as well as performing the early long flights and later the route proving, together with further airport compatibility checks.

Please send your news views and comments for the next AME newsletter to:-

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The full A380 test programme represents more than 2500 flight hours. Upon completion of the certification process the world's largest commercial airliner will be delivered to the first operator Singapore Airlines in late 2006. So far, 16 customers have ordered 159 A380s.

Nerves of steel

[Manufacturing in Action](#), Source : The Manufacturer
Published : February 2006

The introduction of a lean manufacturing approach has helped Outokumpu Stainless' Sheffield Primary Products business increase its delivery performance by nearly 25 per cent since 2004. Tim Collins talked to Bernie Sheehan

When Sheffield Primary Products is determining the requirements of a new grade and/or product, there isn't much margin for error – and potentially a huge cost, with 120 tonnes of stainless steel per cast. However, it's a challenge that the company increasingly faces as it develops its product portfolio to meet a changing market.

Sheffield Primary Products has been part of the international stainless steel and technology company Outokumpu since 2001. Headquartered in Espoo, Finland, Outokumpu has annual sales of more than 6 billion euros. The group was recently restructured and Sheffield Primary Products is now part of its General Stainless division, which also includes Tornio Works and the Ferrochrome plant in Finland.

"We manufacture semi-finished stainless steel products in basically three forms: slabs, blooms and billets," explained Tim Collins, logistics manager. "Ultimately all go for further hot-rolling processes and are formed into a variety of components. Some are supplied internally to other businesses within the Outokumpu group and some are for external clients." For example, slabs rolled to plates are used in heavy industry (such as chemical tankers, oil and gas pipelines and applications in the power generation industry), while billets rolled to rods are used in applications as diverse as wire for filaments in light bulbs, spokes for bicycle wheels and wall ties. Customers are based in the UK, Scandinavia, central Europe, Asia-Pacific and the US.

The company employs 240 people in Sheffield, and has annual sales of £360 million. Originally, when the factory was built in the 1970s, production was slab-only, but since 2002 Sheffield Primary Products has invested 30 million euros in the site – mainly on

continuous casting equipment for making blooms and billets. In continuous casting liquid steel is poured into vertically positioned moulds and the solidified products are continually drawn out of the bottom. The traditional method used a fixed mould and the steel had to cool before the product could be taken out, so the new technology is clearly more cost-effective.

"As we developed as a group through the merger it became obvious that to survive into the future we would need to change our portfolio," said Collins. "We now produce around 400 different stainless steel products each year from a portfolio of 500 different grades. Our market is moving towards specific applications for stainless steel. We're focused more towards niche markets, rather than stainless for bulk production of products including cutlery, sinks and domestic appliances – which is better suited to 'integrated site' production from our Tornio works and there is now increasing competition from China."

Lean manufacturing was introduced in 2004 and has proved highly successful. External consultants from ThinkFlow ran a series of workshops to introduce the concepts to the management team, but there were challenges in applying traditional lean methods to Sheffield Primary Product's steelmaking, casting and finishing operations. "For example, we have no visibility of our order book beyond a week. This gives our customers the maximum amount of time to book their orders before loading into our system," said Collins. "At the end of every week we gather the orders together for the next week's manufacture, but it makes our portfolio quite disjointed."

On the steelmaking and casting side of production, maximising throughput and minimising operational expenses were identified as the main issues. It was realised that any bottleneck was likely to occur early in the production sequence. To deal with the lack of forward visibility, an algorithm was developed, showing penalties from order to order in terms of time and operational expenses, and allowing the company to reshuffle orders as far as possible to minimise these.

Shop-throughput overall improved but the system was still disjointed on the finishing side (processes such as cutting, surface grinding and ultrasonic testing), particularly billets and bloom production, where there might be 180 pieces from one cast, compared to seven or eight pieces from a slab cast. "It was a huge step change for us. We wanted a finishing system which would allow each product to flow through the factory in 72 hours," said Collins. "So we developed a rule-based system, following

lean principles, to make this happen irrespective of the product mix. It means there's never any confusion on the shop floor, it's an easy system to follow."

Before the new finishing system went live, a simulation of a full week's production, including quality and production variability, was organised – using Lego bricks! "There were two benefits – it tested the rules out and it trained the operators in the new system," explained Collins. "We had the buy-in of the operators, who could now understand the impact of a wrong decision. There was an instant result on the billet and bloom side, where the work-in-progress inventory went from 10,000 tonnes to 5000 tonnes in two weeks. It has remained at 4000 to 5000 tonnes ever since, so there has been an instant cash release. Nothing has taken more than the 72-hour target so far because people are following the rules very consistently."

When designing the lean flow, one of the requirements was to support the company's onward transport system. The low-cost arterial transport systems used have been developed with key partners as timetabled fixed capacity operations, unique within the industry. "If we don't use it, we lose it. It's more expensive to add extra resource back in," said Collins. "In our total selling price of stainless steel products, 75 per cent of the cost is raw materials, 20 per cent is conversion and five per cent is logistics and external transport. Since we can only control a quarter of the total costs it's important to control transport element."

In 2005 the average delivery performance was 99.3 per cent of complete orders delivered on time, compared to immediately before the introduction of lean in 2004 when it was running at 70 per cent. Further challenges lie ahead. "There's the need to keep abreast of new opportunities for our semi-finished products and produce new grades very quickly," said Collins. "The nature of our current portfolio places huge demands on our operational facilities. When we produced long runs of commodity grades on a regular basis, we knew more precisely how long our operational consumables would last. With the current complex 'short run' portfolio the impact of different grade by grade sequencing has a more dramatic impact on operational consumables. We have to be sure to get a successful product out, and also sustain our customer service levels. As with any large commodity, the key buying decision is based on price, so we have to excel on the service aspects to put ourselves in a strong position to attract repeat business."

7TH ANNUAL SIX SIGMA SUMMIT

The 7th Annual Six Sigma Summit and Excellence Awards – **How to drive your process excellence from deployment to unconscious competence** will be held at The New Connaught Rooms, London. April 24 - 27, 2006 .

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- * Think outside the box: Utilise continuous improvement to leverage new business opportunities with Norwich Union Life and Kodak Polychrome Graphics
- * Stop talking and start listening: New techniques to achieve a two-way conversation and leverage support from shop floor to boardroom from Bechtel and Dell
- * Keep your wheels turning: Create your own constantly changeable continuous improvement programme structure with true-to-life examples from Bombardier and Alstom
- * Dress to impress with a fitted, tailored toolkit: Achieve true integration with Lean, Scorecards and BPM with North West Wales NHS Trust and Royal & SunAlliance
- * Lead your leaders and train your trainers: Utilise the examples of Siemens and Motorola to reach higher goals with your internal support structure

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