



September 04, 2006
Volume 5, Issue 34

LEAN THOUGHTS

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Lean Manufacturing & IT: No Oxymoron!

Extracted with thanks from the AME UK MonthlyNewsletter, Thanks to editor, Chris McKellen

By Chris Astall, Product Director, Demand-Driven Strategies, Cincom – Here are some UK insights

LEAN theory dictates that manufacturing should be about the manufacturing process only and that all other activity is “non value-added”. As such, IT systems are considered surplus to requirements when manual or visual systems will suffice. But in the business world, there are other systems that are necessary to run a manufacturing business, beyond the actual production line. By applying Lean to the enterprise, rather than to one process – taking into account processes that are equally value-added but tangential to manufacturing itself – **manufacturers are finding that IT can be applied to Lean philosophies to the benefit of business.**

The schism between IT and Lean thinking occurred due to the incompatibility of existing manufacturing IT with the Lean environment at its conception. Lean advocates a “pull” action that conflicts with traditional IT systems (such as ERP) which supports a “push” chain.

In addition, the ways in which Lean and ERP maintain control are very different. ERP maintains control through work orders and inventory transactions – a “top down” process, centralized by the knowledgeable few. Lean promotes control in the hands of many, decentralized through simplicity and process visibility. It promotes pushing responsibility, ownership and execution as far down the hierarchy as possible, using simple, manual systems. IT is seen as anathema to this as it puts down decision making into the hands of few.

Integration of technology – not complete removal – is the key to Lean success. By reviewing technology to use it only where it adds a genuine advantage, and integrating systems to enable the automation of essential but non-specialist tasks (such as Kanbans), IT can add value to the processes surrounding manufacturing, as well as support the Lean environment. This boils down to applying the 5S philosophy (sort, set in order, shine, standardize, sustain) to your IT: sort out what systems add value, set them in order (integrate), shine them up (BPO), standardize them (BPM), and sustain them through appropriate support.

IT can demonstrate real value in terms of modeling, data collection and assimilation for decision support at the point of attack.

Sales process

Far from putting information into the hands of a few, the skilled IT staff now puts it into the hands of many. For example, with Knowledge-Based Guided Selling, IT can be responsible for quickly pushing knowledge forward into the hands of those who need to use it. The sales process, even for complex and demand-driven manufacturing, can therefore be simplified and expedited through the use of IT. This ensures “buildability” as well as the knowledge that the product being offered meets the needs of customers.

Demand planning

Where problems exist in determining just when a product will or can be built, people are usually at the centre of the activities and knowledge is local or specific. Modern demand-management applications assist

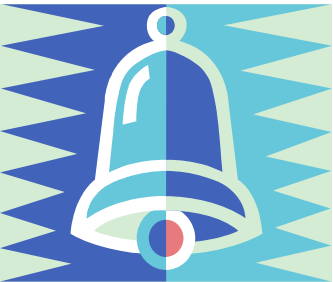
in capturing knowledge about time and space constraints, which they use to sequence demand into available production slots. By understanding the constraints of the production process, IT can ensure the lead-time quoted is accurate and based on facts not assumptions.

LEAN CONSORTIUM MEMBERS:

- CFN Precision
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- ORENDA
- NESTLE WATERS CANADA
- STACKPOLE



Where "Lean Thoughts" Become Reality



Material flow

Kanban systems were originally a purely visual system and are lauded by Lean purists. However, high-tech Kanban systems can be made to include automated steps and can be fully integrated with suppliers, improving efficiency throughout the supply chain. In the global supply chain, IT is irreplaceable because it enables information to be exchanged almost instantaneously, which otherwise would take valuable time.

Product and process management

Examining a complex product and its almost endless array of possible configurations today presents the Lean manufacturer with two major issues:

1. How to acquire and assemble the necessary details about how a product is going to be built, including its BOM, its route and relevant documentation such as work instructions, process sheets, safety sheets etc.
2. How to maintain that information as things change along the way (product, processes, standards etc).

The most efficient and productive way to assemble all of this information in the first place is to do it using the knowledge gained during the sale process. With an integrated IT system linking sales to planning, information such as the BOM, the route and the documents needed to support the product build can be easily collected from re-usable components. Thus, BOMs and routes in particular must be engineered to be modular in nature and attribute driven.

Business process optimization

The ability to respond quickly and efficiently to any request – internal or external – can be seriously hampered by inefficient or manually restrictive processes.

While important in any organization, a critical factor for the successful Lean enterprise is establishing an environment where actions and decisions occur in or near real-time. Purists believe IT hinders this by virtue of its basis in rules. However, if the IT system is highly configured enough, it should facilitate the process, becoming the catalyst for the event-enable environment.

Lean manufacturing and IT is not an oxymoron. IT can be a means by which to improve the business processes that surround and support mfg in order to bring Lean to every corner of the business; eliminate non-value added activity and focus on the needs of the customer.

In short, to create the Lean Enterprise.

CHINA RISING - FACTS & FIGURES

Some members of the Association of Professional Futurists have recently been traveling in China and sending back interesting reports. To frame the discussion, APF member Rohit Talwar posted this summary of facts and figures, extracted from various sources.

[Read this, to help understand how China is rising.](#)

Growth

- * About 10% a year for the last 20 years
- * 172 of China's cities have populations of over 1 million (compared with 9 cities in the US)
- * Plans to spend \$17.4B constructing airports in next 5 years
- * Number of aircraft will rise from 863 today, to 1580 by 2010 and 4000 by 2020
- * The World Health Organization says that China has 16 of the 20 most polluted cities on the planet
- * More than 400 Chinese cities have water shortages

Foreign Trade

- * Share of world exports will rise from 6% to 10% by 2010
- * Growth of 15% in 2006 to about \$1.7 Trillion
- * First-half 2006, foreign trade reached \$795.7B, growth 23% with trade surplus of \$61.5B - 55% increase from 2005
- * Now the world's largest manufacturer of personal-computers
- * In 2001, US manufactured exports were more than double China;
- In first-half 2006 China passed the US, with \$404B, compared to \$367 billion for the US
- * 2005 high-tech exports \$220B (passed US high-tech in 2004)

Technology & Innovation

- * Goal to achieve technological self-sufficiency within 15 years
- * 419 million mobile phone users, 440 million by end of 2006
- * In June 2006 China had 123 million Internet users (150 million including wireless). About 20% increase from June 2005; still only 9.4% of the population.
- * 77 million broadband users in June 2006, 45% jump from June 2005.

Socio-Demographics

- * By 2020 the Chinese middle class is forecast to double to over 40% of the 1.3 B population - 520 million people.
- * Luxury goods market is forecast to grow 10%-20% annually until 2015 - overtaking the US.
- * 4 million graduates in 2006 - including over 800,000 in engineering.
- * Estimated 320,000 dollar millionaires in 2005

What next for the China economy? Recent report cites 5 major factors:

1. Embrace of market forces.
2. Opening of the economy to trade and inward investment.
3. High levels of saving and investment.
4. Structural transformation of labor force - decline in agricultural workforce from 70% to 50%; freedom to choose jobs;
5. High investment in primary school education.

Tour **W**orkshop **C**onference
 Consortium Event Schedule



January	February	March	April	May	June
<p>T</p> <p>Wednesday 25 Eaton Electrical, contact Joe Fisher, JoeRFisher@eaton.com</p>	<p>T</p> <p>Wednesday 15, CFN Precision, contact Barry Wood, bwood@cfn-inc.com</p> <p>W</p> <p>Date & location TBA Your own "STEP Diagnostic" to create Vision, Mission and Direction Contact Richard Kunst Richard.kunst@la-z-boy.com</p>	<p>T</p> <p>Wednesday 22, Nestle Waters, contact Mariela Castano mcastano@perriergroup.com</p>	<p>T</p> <p>Wednesday 19, CTS Corp., contact Bob Garces, Bob.Garces@ac.ctscorp.com</p> <p>Consortium Shareshowcase Saturday 29 Kraft Oakville. Contact Cindy Grolleman cindy.grolleman@stackpole.com</p>	<p>T</p> <p>Wednesday 17, Stackpole CSD, contact Don Barber Don.Barber@stackpole.ca</p> <p>W</p> <p>Date & location TBA "Compartmentalize the Noise" * Daily Report-outs * Standard work for Leaders Contact Richard Kunst Richard.kunst@la-z-boy.com</p>	<p>T</p> <p>Wednesday 21, Morrison LaMothe, contact Tony Vita tvita@morrisonlamthe.com</p> <p>C</p> <p>AME Regional Conference Mon 12 to Thurs 15 K-W Ontario Contact www.ame.org</p>
July	August	September	October	November	December
	<p>W</p> <p>Date & location TBA "Establish Anchors" * VSWI ... Visual Work Instructions * TPM ... Total Productive Maintenance Contact Richard Kunst Richard.kunst@la-z-boy.com</p>	<p>T</p> <p>Wednesday 20, Kraft Foods, contact Hanif Jivraj hjivraj@Kraft.com</p>	<p>T</p> <p>Wednesday 11, Stackpole PMC, contact Cindy Grolleman cindy.grolleman@stackpole.com</p> <p>C</p> <p>AME National Conference Mon 16 to Friday 20 Dallas, Texas Contact www.ame.org</p>	<p>T</p> <p>Wednesday 15, Messier-Dowty, contact Richard Evans Mike.Smith@Messier-dowty.on.ca</p> <p>W</p> <p>Date & location TBA Your own "Get Organized" * 5S+1 Contact Richard Kunst Richard.kunst@la-z-boy.com</p>	