



Sykes factory

# Agility - The future of manufacturing in Australia

Over the past 20 years Lean enterprise has been used as an effective tool for improving manufacturing competitiveness through reducing costs. However in a globalised market, cost reduction is reaching its limits. In many cases the labour cost advantage of low cost countries is simply too great to be bridged. As a result many of the best Lean companies in Australia, particularly in the automotive sector have faced poor financial performance and closure. The focus for operational improvement therefore needs to shift from reducing cost to increasing value for customers.

BY TIM MCLEAN

**M**odern consumers want choice and service. What this translates to for manufacturers is more models, shorter life cycles, greater customisation, and prompt product engineering. The traditional mass production model where everyone drives a black model T Ford (or a Silver Toyota Camry) is dis-

appearing. Most manufacturers in developed economies cannot compete on cost for standardised mass produced products. The internet enables consumers to customise products on line to fit their personal needs. Nike offers consumers the opportunity to custom design their shoes, while Mini enables customers to customise the appearance of their new car. In Australia Vistaprint is turning the commercial printing business on its head

by enabling customers to proof their print orders on line and then using flexible digital technology to offer a three day order turnaround for everything from a business card to a personalised pen. B2B markets too, such as machine tools, heavy transport and scientific instruments also value the ability to customise their expensive purchases.

When lot sizes and product life reduce and the number of variants in-



crease, the challenges of managing an extended international supply chain multiply and local suppliers come in to their own. That is, if the local supplier is up to the challenge of providing the fast customised service that the customer needs.

Agility or Agile Manufacturing is designing your process to be able to respond to customer need for a customised product at short lead time and competitive cost.

The steps to achieving agility start with reducing lead time. Map your processes from receipt of order to delivery to identify key causes of delays and waste. These will not always be in the production process. Order processing, delays gathering engineering or technical data and batching in production planning often add more to the lead time than the production process itself. Innovative computer rack manufacturer, Server Racks Australia (SRA), in Queanbeyan, has focused their recent improvement efforts on this process. SRA already had a 'Lean' manufacturing process, but delays and increasing customisation was challenging its engineering and sales processes. Working with TXM, SRA pulled together sales people, order entry staff and engineers as well as production to take days out of the lead time. This enables SRA to offer customised products in market leading time.

Set yourself a challenging lead time target. TXM customer Larnec Doors in Swan Hill set themselves a target of a 75% reduction in order to delivery for their custom made doors. In developing your plan to reduce lead time we recommend a structured approach such as the TXM 'Seven Steps to the Future State' process. Simply brainstorming is unlikely to bring out new solutions or focus your team on the areas of greatest opportunity.

Agile manufacturing does provide challenges for the Lean approach. Precise standard work measured down to the second is often not possible for a dynamic and highly customised product mix. However a standardised sequence of work and standardisation of setups and common tasks is beneficial. Moving lines are often hard to implement and flexible cells are often more effective. Jeff Sykes and Associates in Geelong worked with TXM to design and implement a world-leading one piece flow production line for their rowing boats based



**Branach load levelling box for ladder assembly**


on standard work, even though every boat is unique.

Kanban systems are useful for common parts, but kitting carried out on site or by the supplier is often necessary for parts that are unique to individual products. This can be managed by making the kitting process the pacemaker or implementing a 'kit pull' system where the consumption of one kit triggers the preparation of the next kit. Branach Manufacturing used a kitting system to ensure that the components for their custom made extension ladders were delivered accurately to the assembly cell on time. This prevented delays to production due to shortages of parts.

Another key to achieving agility is to delay product differentiation until late in the process. This means that product can be held at an intermediate or subassembly stage and then customised to order. Agilent Technologies has worked with TXM to use this approach for their ICP-ES product. Common subassemblies are manufactured in work cells adjacent to the main assembly line with a 'pull' process from the assembly line triggering manufacture of more subassemblies. Instrument assembly lead time and work in progress is then reduced by a factor of

4. The small amount of additional sub-assembly stock held by the line is more than outweighed by the elimination of seven days of instruments in WIP and the customer benefits of a shorter lead time.

The foundation principles of Lean remain essential. Visual systems mean that shop floor teams can respond in real time to changes in customer demand or process problems. Shop floor problem solving tools enable problems to be quickly highlighted, root causes identified and permanent solutions put in place and checked for effectiveness.

Cost reduction is a zero sum game that Australian manufacturers have already lost. Focusing on agility and customisation provides these manufacturers with an opportunity to once again develop a sustainable competitive advantage against their low cost foreign competition. 

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