

TOC's new support for lean manufacturing.

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By Alan Johnson

LEAN manufacturing, a passing fad or not, involves several vital elements that can improve the productivity, and profitability, of Australian manufacturing companies.

As Geoff Squires, supply chain and logistics specialist with Intentia Australia suggests, Australian manufacturers would do well to read more about lean manufacturing and understand its philosophy.

'Subsequently manufacturers should look at their business processes, and understand what the value is they are trying to give to their customers. Then they should work out what techniques they need to apply to make a lean manufacturing environment that is demand driven, a pull process, that provides value to customers and reduces risk, downtime and waste, and ultimately has a continuous improvement process associated with it,' Squires told Manufacturers' Monthly .

While admitting TOC (Theory of Constraints) is only a small part of the lean philosophy, Squires says it's a vital element for manufacturers to increase their value as a supplier to their customer base.

'Many people try hard to optimise all different parts of their business, when in manufacturing the most important part is to understand where the constraints are. Because the constraint actually creates the rhythm for the throughput.

'You might end up having a lot of inventory sitting in front of the constraint, and vacant time on machines downstream from the constraint. If you don't understand that, you end up wasting a lot of money in parts of manufacture or the supply chain, that's irrelevant to the outcome for the customer.

Squires believes TOC offers two fundamental savings. 'First is a reduction in inventory because you don't have WIP (Work In Progress) in front of operations that have not been fed because of constraints.

'Second one is total throughput. If you optimise the constraint, you are getting the highest throughput through a plant that you can based on that order front.

'With the trend towards customisation of end product and shorter lead times to market TOC is becoming more important. Today manufacturers are making to order rather than making to stock, at the same time trying to reduce costs,' Squires said.

He explained that Intentia now offers a TOC production planning package to support lean manufacturing. According to Squires, the package can shorten the time necessary to realise the benefits of lean manufacturing. 'It can quickly deliver increases in throughput, minimise inventory and reduce operating expenses.

'In its simplest format, the software allows manufacturers to understand the throughput at a constraint and then manage demand and supply to the throughput of that constraint. To buffer the constraint properly.

'In a more complex environment, typically today's manufacturing environment where manufacturers have floating constraints (depending on demand/product mix), it allows them to look at the demand and understand what that means on the load on particular machines, and then optimise the throughput at the various stages of production to meet that demand, and to buffer the constraints that come from that demand.

'It allows manufacturers to understand where that constraint is, based on the demand.

'The software relies on information put in the system around throughput and product mixes specifically related to those items that can become constraints.

In the past people used to try and model everything, but that creates a whole lot of data you need to do that. But if you understand that of the twenty different operations, for example, that occur in a manufacturing plant, there are three that can become constraints. Then really the only ones you need to model properly on data are those three. The constraint can move between those three depending on what orders are being placed, and the product mix and the set-up times associated with those items.

According to Squires Australia is just starting to understand the concepts of Lean. 'And the concepts of all these burning bridges they have to get across to maintain their viability.

'This is also a huge opportunity to move up a level, from pure manufacturing and start looking at supply chains,' Squires said.

Certified by Eliyahu Goldratt (author of The Goal) as being a certified software package for TOC, Squires acknowledges what Goldratt's book did to promote TOC.

'That was fine for simple production, but the problem is today you have moving constraints, with varying order mixes on a daily/weekly basis. It's (TOC's) now a moving target.

'You can't just walk around the floor and make a decision to where the constraint is because it's based on the product mix, and the mix is varying now more than ever before,' Squires said.

'This lean approach is something Australian industry really needs to start to think seriously about. TOC, MRP, Kanban, JIT, performance measurement, as isolated components actually doesn't get the full picture,' Squires said.

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