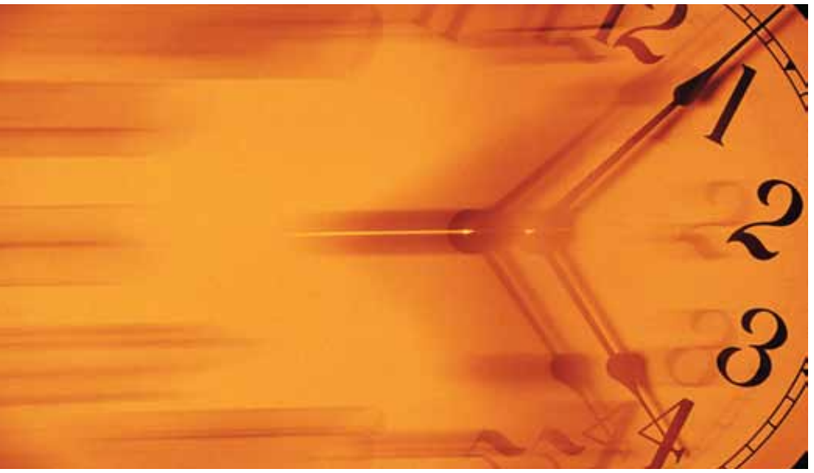


ERP Brain behind brawn

ERP can truly transform a manufacturing business – but only if intelligently directed, Mark Edwards of eBECS tells Malcolm Wheatley.

To manufacturing executives, Mark Edwards poses an interesting thought experiment. Imagine, he says, that you could go back in time to previous job roles that you have performed within manufacturing industry. How would today's modern ERP technology help? Or think of it another way – what if there was no integrated IT at all?

In a recent conference presentation to manufacturing executives, Edwards posed just such a question in the context of his own career.

These days the lead consultant and business process manager at specialist manufacturing industry Microsoft ERP partner eBECS, Edwards, a graduate engineer from Durham University with a postgraduate qualification in Manufacturing Management and Technology, has previously held down senior roles at two large manufacturers.

One, a global industrial fan manufacturer, operated in three distinct business segments: make to stock, assemble to order, and make to order. Component purchase lead times were anything from two weeks to three months, he says.

The second, a manufacturer of programmable logic controllers and printed circuit boards, also operated in the same three business segments and experienced even longer purchase lead times.

In retrospect

In his roles at these companies explains Edwards, challenges included: reducing order-to-delivery lead times, improving due date performance, cutting inventory levels, boosting factory floor productivity and reducing back-office costs.

To some, it's tempting to see lean manufacturing as playing a significant role in delivering on these objectives. And indeed, Edwards isn't dismissive of such a suggestion. Traditional lean manufacturing principles could have played a part, he acknowledges – although traditional, 'manual' lean isn't ideal for the complex bills of material of make to order environments. Better by far, he says, to take advantage of the IT-enhanced lean capabilities of modern ERP systems such as Microsoft Dynamics AX.

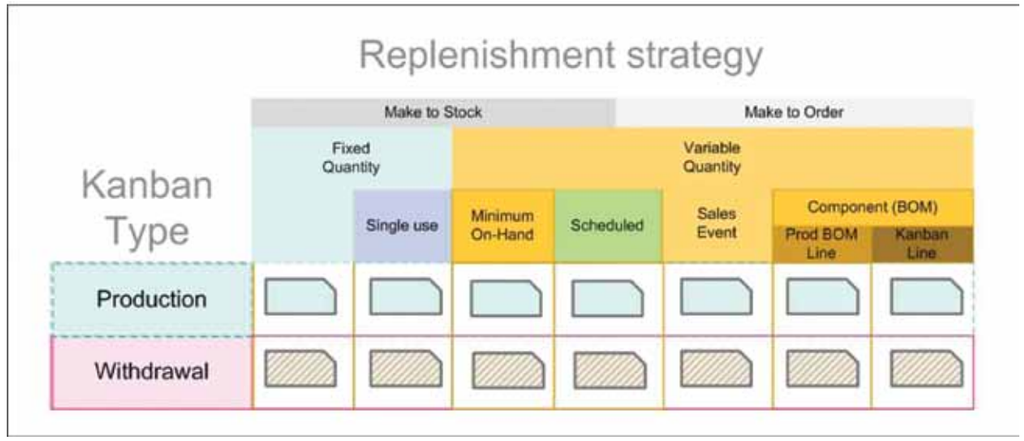
"The notion of 'runners, repeaters and strangers' features very strongly here in such businesses," he observes. "Are you going to generate a sea of 'one off' paperwork to deal with repeaters and strangers? Spreadsheets, phone calls, and manually-generated kanbans won't suffice, especially with the lengthy lead times involved. You can't un-invent ERP – so why not leverage its strengths, and augment those strengths with lean principles and tools as appropriate?"

Yet even so, he adds, if lean isn't the complete answer, then it would be equally naïve to see ERP as a 'one size fits all' universal panacea. In others words, ERP can help – but it has to be applied intelligently.

"It's pointless seeing ERP as a plug-in replacement for your existing systems, and then sitting back and waiting for improvements to happen," asserts Edwards. "You have to start with an understanding of what needs improving, and a knowledge of exactly how you expect ERP to deliver those improvements. In other words, you start with what qualifies you for new business, what wins it for you and then what in the 'as is' situation is hindering you? Then you establish what the 'to be' needs to look like and what you need to do in order to reach it."

And in the context of two companies in question, he notes, it wasn't difficult to see where ERP could have made – and ultimately did make – a difference to the bottom line.

Kanban types in Dynamics AX



And what if more business could be won – if only it were only possible to improve order due date delivery performance? Wave a metaphorical magic wand and what does ERP deliver for Edwards' two former businesses?

Lessons learned

For the fan manufacturer, Edwards posits a number of clear improvements. On time in full due date performance, for instance, could have been boosted through 'available to promise' and 'capable to promise' tools, finite scheduling, and simple min-max replenishment capabilities. A combination of lean-style kanbans and statistically-derived safety stock could have reduced lead times. Forecasting at the right level in the bill of material and kanbans could have cut inventory levels. And back-office costs could have been cut with automated purchase order handling.

Likewise, he argues, the electronics manufacturer could have seen distinct benefits from ERP. A project-planning perspective could have helped its make to order business, especially with an understanding of true costs. Again, judiciously-chosen combinations of kanbans and statistically-derived safety stock could have reduced lead times. Sales order pegging, back-to-back ordering, and automated materials planning could have reduced back-office costs, with a spill over into direct labour costs, too, he adds.

"You can't un-invent ERP – so why not leverage its strengths, and augment those strengths with lean principles and tools as appropriate?"

Mark Edwards, lead consultant and business process manager, eBECS

And there's more besides, emphasises Edwards. Engineering change control, lot traceability, quality sampling, improved product configuration: in each case, there's a role for them to play in helping to address the very specific challenges faced by each business.

But, as with the other improvements, those improvements are only possible when thorough preparation has put in place an appropriate framework in which to apply each piece of the ERP toolkit. Which, says Edwards, is one of the most important aspects of such 'after the event' thought experiments.

"Here's a business that you believed you knew well, yet much of what an ERP implementation would have required had actually been left undefined," he notes. "For management, the temptation is to fire-fight, and not put in place the detailed understanding of the business that actually plays a huge part in underpinning improvements."

Have value streams been mapped? Does the business know which are its repeaters, runners and strangers? Have cycle times and setup times been set up and validated? Have 'Five-'S' disciplines been put in place on the factory floor – and in the offices? Are stock levels based on statistical models or gut feel? Are actual supplier lead times measured and monitored? Is back-office productivity measured?

"Such basic questions underpin the operation of the business, but are often left unasked or unanswered," he stresses. "From a strategic perspective, one of the great strengths of ERP is that – done well – it forces manufacturers to engage with such issues, rather than relying on custom and practice."

In other words, ERP's transformational capability owes more than might be suspected to the environment in which is it implemented. Prepare the ground well, and success is more likely. As was the case for the two companies discussed here. END