

Lean is not enough

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Introduction

Lean Manufacturing has been 're-discovered' by many UK manufacturing companies over the past two years. Announcements of its 'death' in the late 90s as companies' focus moved into topical areas such as ERP replacement, e-business, Supply Chain Management and Product Data Management were undoubtedly premature. In a study completed by Codexx earlier this year into 25 medium-sized manufacturing companies based in the UK, 10 of them, 40%, had an active Lean Manufacturing Programme. A survey of 100 UK manufacturing executives in 2002 for 'The Manufacturer' showed that 45% were seeking to implement Lean Manufacturing within 12-24 months.¹

Companies are using Lean Manufacturing to drive down manufacturing costs and improve their responsiveness. Despite the concerns expressed by successive governments over the competitiveness of the manufacturing sector, manufacturing productivity has consistently lagged behind that of our international competitors for more than twenty years.² So, from the perspective of improving the practices and performance of UK manufacturers, this is highly encouraging. But from the perspective of cost competitiveness with low cost offshore manufacturers that many companies fear, even major cost reductions from Lean Manufacturing programmes will not be sufficient. We believe that competitiveness based on cost alone cannot be secured by most UK manufacturing companies – in addition they must develop capabilities for significant and sustained innovation.

The benefits of Lean

The term 'Lean' was coined in the mid 1990s by Womack and Jones³ to describe the implementation of Japanese manufacturing techniques such as 'Just In Time' (JIT), waste elimination and set-up reduction in Western businesses. Although the key techniques emanated from work in Toyota by Taiichi Ohno and colleagues started in the 1950s, the paradigm changes required for success delayed its acceptance by most Western companies for decades. Ironically, after a brief flurry of interest in the 1980s and early 90s, it was put on the shelf of 'been there done that' by most UK companies. Though anyone who has spent time in UK factories since then knows that Lean practices remain the exception, not the rule. And where Lean practices were applied, they often consisted of isolated tools like 5S, limited JIT and some SMED (Single Minute Exchange of Die), without any overarching Lean strategy to tie it together, provide focus and sustain it.

The renewed interest in Lean Manufacturing observed in our 2003 study, we believe, stems partly from its rejuvenation and repackaging by Womack and Jones but also in its combination of simplicity and fundamentals (which is a welcome change for businesses jaded by hype from the dot.com boom) and its promise of waste reduction – which most companies read as cost reduction.

An objective of Lean is indeed to drive out waste. But waste in its broadest sense - encompassing wasted time, activity, inventory and space - and create processes that flow and are initiated by customer demand. By doing this costs can be radically reduced and service radically improved. Companies that have embraced Lean have typically cut inventories and cycle time by 50% in each wave of their Lean programme³ (in our experience of Lean projects this is often exceeded). Lean does not demand expensive investment in IT, nor complex programmes. But it does demand the challenging and breaking of existing paradigms and the harnessing of the

energy and knowledge of company employees, suppliers and customers. Another term used for responsive manufacturing systems is 'Agile'. There is much debate about the differences and merits between Lean and Agile. The reality is that Agility depends on the Lean fundamentals of short cycle time, reduced setup, multi-skilling and flow being in place. The difference lies mainly in the *intent* – Agility is a core of Lean practice, focused on responsiveness, not cost reduction.

The challenge of cost

The gap between labour costs in the UK and offshore manufacturing locations is a staggeringly wide one. How wide depends on your interpretation of statistics and the assumptions used in your outsourcing arithmetic. Some facts make the point. The UK minimum wage is £4.20/hr (and increasing to £4.50/hr in October 2003). The average manufacturing labour rate in China is typically 1/10 of that in the UK. However, wages in the Far East can go even lower than this. Wages in clothing and footwear factories in China, performing subcontract manufacturing for well-known Western companies such as Wal-Mart, Nike, Adidas, Ralph Lauren and Esprit ranged from \$0.13 to \$0.32 per hour, albeit working in very poor working conditions.⁴ However you choose to do your calculations, the gap is indeed a chasm.

Of course, labour costs are not the major component of manufactured product costs, typically being 15%, with materials and overhead accounting for the other 85%. However, with a labour rate in China 1/10 of that in the UK, major savings would need to be gained in the other areas to give an equivalent. And offshore manufacturing also benefits from significantly lower overhead costs. Having said this, in our experience, many companies do not give the equivalent degree of focus in managing and reducing their larger spend on materials procurement and holding costs, as they do their labour costs. In performing the outsourcing arithmetic, many companies underestimate the costs of supporting offshore manufacturing locations and travel, communication and personnel costs can be high. The management of the total supply chain is critical and needs to be examined from a systemic viewpoint in order to determine costs and other issues related to the inbound and outbound supply chains. For example, Raleigh, in moving their UK manufacturing to Vietnam, cited the benefits of being closer to key suppliers, such as Shimano, based in Japan and other parts of the Far East. In contrast, GDA, the Peterborough-based maker of white goods such as Hotpoint and Creda, decided to retain their refrigerator manufacturing in the UK, after an exhaustive study of a Hungary-based alternative, due to the logistics costs of supplying high cube/value products from there to their predominantly UK market.

So whilst there are ifs and buts, and each situation needs to be assessed separately, the trend is clear. Given the gulf between Western economies and the new emerging economies in costs of living, workplace health and safety legislation, it is clear that for the foreseeable future there will be a major and unbridgeable gap in costs. In the words of Digby Jones, Head of the CBI, in January 2003: *"The UK will never again compete on cost alone. Our future success lies with a highly skilled workforce providing innovative, high-value goods and services that command a premium in global markets."*⁵

Moving beyond Lean Manufacturing

So are companies wasting their time implementing Lean Manufacturing practices? Should cost reduction be the major goal of a Lean Manufacturing programme? Should Lean Manufacturing be the core strategy for a manufacturing company? No, no and no.

Lean Manufacturing is a foundation for enabling responsive, high quality and cost *effective* manufacturing. The successful implementation of Lean techniques in manufacturing will enable quick response to customer orders, higher quality and greater customisation. Numatic International, a medium-sized company manufacturing vacuum cleaners, floor polishing machines and janitorial equipment, offers more than 5,000 products and variants in its range whilst minimising inventory and lead times through the use of lean techniques. In their words: *"The essence of the company's success is to be able to give customers the exact specification they want, in a very short space of time."*⁶ So cost reduction should not be the major goal of a Lean Manufacturing

programme. It is certainly a benefit and can enable most programmes to be effectively self-funding. However, companies embracing lean appear to be primarily focusing on cost savings. (In the previously cited survey on Lean Manufacturing¹ cost reduction was identified by 52% of the respondents as the major benefit). We believe that the major goals should be: improved responsiveness and flexibility; increased workforce skills, more effective problem-solving and improved quality. Achievement of these goals would allow companies to compete by value, not cost. The UK needs to play catch-up in this area. A recent study by Michael Porter found that “*UK companies compete less on unique value (versus cost) than advanced nation peers.*”⁷

Lean *Manufacturing* should also not be the core strategy for a company. It is too parochial. What is the point of having a World Class manufacturing operation with third world R&D, sales and distribution? Such isolated improvement creates *ghettos of excellence* and does not yield company-wide benefits. Instead, companies should be thinking about using Lean across their value chain (as argued by Womack and Jones), encompassing their internal and external (e.g. customers, distributors and suppliers) operations. This broader thinking leads to transformational projects in areas such as Supply Chain and Mass Customisation to provide much greater potential benefit to a company. But even ‘end-to-end Lean’ is not enough. Lean provides an excellent philosophy and discipline for improvement but it does not focus sufficiently on Innovation. If Lean can be considered to exploit ‘left-brain’ thinking of sequential analysis, then Innovation does the same for the right on synthesis and intuition. To get effective improvement in a company, both are required.

Innovation – more than just bright ideas

Innovation is indeed more than just bright ideas. It is also more than just products. Companies can innovate in four key areas:

1. Products and services

- As Dyson famously did with its vacuum cleaner, using dual cyclone technology and good design

2. Business process innovation

- As Toyota did with their JIT system in manufacturing

3. Marketing (position)

- As GlaxoSmithKline did with Lucozade, turning it from something for the poorly to a ‘Sports’ drink

4. Business strategy (paradigm)

- As Dell have done with their low-cost direct model for PCs

Innovation helps business to renew and reposition in one or more of these four key areas. Managers often think of Lean as being something done in Manufacturing, but it is important to recognise that it can be applied across a business. Innovation also suffers from such ‘pigeon-holing’. People often consider innovation is something done in R&D, for new products. Is this acceptable in today’s highly competitive environment? Of course not. If asked, most Chief Executives would want innovation to be something that happened across the business, constantly. So why the gap? Simply because, many companies don’t seek to understand nor manage innovation in the way that they do other business activities. Innovation, they may feel, is too fuzzy, too nebulous, too much of a ‘black art’ to be systemised. Correct? No, it isn’t. Whilst Innovation can be fuzzy and uncertain and the successful energising of the creativity element of innovation can be a ‘black art’, there is indeed a process for effective innovation.

Research from 1996, by David Francis, in the Centre for Research in Innovation Management, at The University of Brighton, on more than 100 innovative organisations identified the major innovation capabilities that these successful organisations possessed. This work then identified 56 common innovation best practices shared by these companies. An innovation model was then constructed and used successfully with 50 organisations, to help them assess their innovation capabilities and help them develop actions to improve their overall innovation capability or IQ (‘Innovation Quotient’). This research work has now been packaged by Codexx into a methodology for helping companies assess and improve their innovation capabilities, which we call ‘The House

of Innovation' (Figure 1). Lessons from the work undertaken with companies identified five common problems that companies have in developing effective innovation capabilities:

- The most common blockage to effective innovation is that it is neither expected nor appraised. For the vast majority of staff innovation is not an activity that employees are tasked to perform – it's an 'optional extra' and so tends not to get done.
- In general, firms lack effective processes to select which ideas should be progressed and which should be abandoned. Companies need to realise that killing ideas is as important as having them in the first place.
- Many individuals lack the personal skills to be innovative. They are uncomfortable with ambiguous situations and are unable to work effectively in the fluid teams that are so often required. If firms want their people to be innovative then they need to train people for this dimension of their work.
- Most firms lack the ability to facilitate high 'innovation intensity'. Ideas take months and years to progress, with part-time people dropping in and out of the process. Innovation requires real focus and dedication, if only for a short time.
- Many organisations lack a clear statement of mission, vision and values. This leads to innovation being driven from the middle of the organisation and a consequential lack of integration. Innovation needs to be managed within a strategic context.

By using an holistic approach, covering organisation & culture, business processes, technology and strategy, we have found that companies can indeed be helped to systematically improve their competitiveness through innovation. The challenge is for companies to break out of their functional paradigms and embrace innovation as a competitive weapon – just as leading companies did with Lean Manufacturing a decade ago.

¹ 'Lean manufacturing survey 2002', The Manufacturer.

² 'The Competitiveness and Productivity of UK Manufacturing Industry', Trade and Industry Committee, Notice 25 of Session 2001-02, 13/6/02

³ 'Lean Thinking', James Womack, Dan Jones, 1996.

⁴ 'No Logo', Naomi Klein, p 474

⁵ Press Release, Unipart Group Communications, 31/1/03

⁶ 'Control', Institute of Operations Management, November 2002

⁷ 'UK Competitiveness - Moving to the Next Stage', London School of Economics, 22 January 2003

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