

Manufacturing evolution

A recent article in an engineering publication outlined some of the contemporary developments in car manufacturing - most notably that Western car manufacturers today really do very little 'manufacturing'. Instead, they have transformed into what might best be described as systems integrators, focusing on the final assembly of the different subassemblies and subsystems that make up the modern automobile. Unsurprisingly, the automobile industry is awash with the outsourcing and offshoring trend that has swept through most erstwhile traditional manufacturing sectors, so almost all of these subassemblies are manufactured externally. A fundamental factor is that globalisation and the continued

search for cost efficiencies in most sectors has forced manufacturers of all sorts to move production to third-party contractors and, usually, to also relocate operations to low-cost countries.

Trend

Manufacturing is not unique in this regard though. The same evolutionary trend is noticeable in other sectors, from banking and finance to telecommunications and IT. For example, the outsourcing of call centres to India is the service sector equivalent of what car manufacturers and many others have done with their shop-floor operations. For us in manufacturing, this trend has meant a shift in management focus from the

actual shop-floor production operations to other areas such as product design; Intellectual Property (IP) management; marketing; and supply chain management. This shift is almost inevitable, because the continued growth of outsourcing in manufacturing has meant that the actual production operations themselves have become fairly commoditised and third-party manufacturers have greater opportunities to accelerate their competency development, due to the economies of scale and economies of learning that come with multiple outsource customers and products.

So, many OEMs have left the manufacturing worries to the 'new experts' - the outsource manufacturers - and now focus instead on other areas where they can have



The modular assembly of cars, using outsourcing and subassembly, has been adopted in other industries



more significant impacts on their product value chains. However, OEMs still need to be fully conversant with the pertinent technical, legal and social issues, since they retain responsibility for their products and brands. For example, OEMs cannot simply sit back and leave it to their outsource manufacturers to ensure WEEE and RoHS compliance, because OEMs remain legally responsible for their own proprietary products, whether or not the actual product manufacturing is outsourced.

Resources

Focusing on areas other than manufacturing can be a big advantage for OEMs. For example, the added resources that can be brought to bear on product design means that a lot more emphasis can be placed on innovation, ensuring products have enhanced functionality and are more environmentally friendly in their manufacture, utilisation and end-of-life treatment. Similar advantages can accrue from increased focus on product marketing and IP management. Many small- and medium-sized Western manufacturers historically placed too much emphasis on their manufacturing competency and not enough on developing their marketing capabilities. In today's cut-throat competitive environment, this is highly inadequate. Western OEMs must be just as innovative in their sales and marketing approaches as they are with their product designs. Companies in the consumer goods and retail sectors illustrate some of the dynamic marketing approaches that OEMs can emulate.

Marketing and product design are just two examples of areas where OEMs can bring added new focus when outsource partners take the manufacturing hassle off their hands. But by far the greatest impact of outsourcing and offshoring for many OEMs has been the need to significantly enhance their supply chain management



(SCM) capabilities. SCM is an area that has historically attracted less coverage in the 'pure' manufacturing sphere, as most attention has been on production processes and technologies and management philosophies such as JIT, MRP, Six-Sigma and Lean. Such approaches can have beneficial impacts on supply chains, but their benefits fall short of what constitutes a robust and effective supply chain capability.

Management

An effective supply chain imbibes all the functions and activities involved in the supply of a product or service - from demand forecasting through to delivery and reverse logistics, where relevant. For OEMs today, the need for robust end-to-end supply chain capability is even more pressing, as continued globalisation of products supply, in part facilitated by low-cost manufacturing and sourcing, has created ever more complex and lengthened supply pipelines. Thus many OEMs have had to rapidly develop their organisational capabilities to cater for this, especially in two key areas - supplier management and logistics.

Supplies

The traditional approach to managing suppliers evolved from an era when most OEMs' inbound supplies were basic commodities used for in-house manufacturing. Today, with the high proportion of outsource manufacturing content in most products, many OEMs' inbound supplies are typically semi-finished goods or subassemblies which have at least 60 per cent to 80 per cent of their intrinsic product value already built-in by the time they get delivered to the OEM. This means the bulk of the tangible value of the product is, in effect, being 'created' and delivered by the outsource manufacturer. It goes without saying that this type of supplier relationship cannot - and must not - be managed in the same way as the run-of-the-mill supplier relationship of yesteryear. These are no longer just 'suppliers'; they are strategic supply partners and OEMs must manage these relationships as effectively as they manage their strategic customer relationships.

But managing outsource manufacturers strategically may not be enough to ensure effective supply pipelines; after all, the prod-

ucts still need to get from the outsource manufacturer's plant to the point-of-use or point-of-sale. Considering that the manufacturing plant could be anywhere as far afield as Taiwan, Estonia, China or Malaysia and the end destination could be anywhere in Europe or North America, for example, the product may have to physically cross multiple geographical, cultural, language and time zone boundaries. Managing across this level of variability and still getting products to market on time and undamaged can become a huge and complex challenge for manufacturers and they can only really address this through seamless and efficient logistics - the science and art (oh yes, there is a degree of 'art' and intuition involved!) of planning and executing product movement and storage.

Tools

Importantly, resolving modern-day logistics challenges involves not only complex transportation and storage network design and analyses, but also significant IT tools and capabilities to enable the myriad of algorithms, permutations and computations involved. Today, IT capabilities are an integral part of any effective and efficient logistics infrastructure, so much so that most manufacturers have to purchase off-the-shelf logistics management software packages and link them to their ERP systems; or buy ERP systems that have integrated logistics management modules; or outsource their logistics activities to third-party logistic providers - yet another group of outsource partners.

It seems that, in the modern manufacturing world, we just cannot get away from outsource partners. In many ways this illustrates the evolution of manufacturing and the challenge for today's manufacturing professionals - globalisation, manifested by continued outsourcing and offshoring in our world, demands that we expand our conventional view of 'manufacturing' and the constituent management skills required. Our abilities to manage other areas that were historically perceived as 'non-core' (such as supplier relationships) may have become more important than our abilities to manage the production shop-floor and the manufacturing process itself. This capability may well be what differentiates the market leaders from the laggards in tomorrow's competitive landscape. ■