

BEST BUSINESS

MANUFACTURING AND SUPPLY CHAIN

IT's all about the supply chain

An efficient supply chain with quality software is basic to manufacturing in the modern business world, writes Leslie Faughnan

Some of the world's most sophisticated software systems are to be found today in manufacturing and supply chain management. From product development and digital prototyping to automated global supply chains, we are effectively at a stage where most non-craft manufacturing is outsourced, and actual factory production is just one stage of the integrated supply chain.

Consumer brands especially are characterised today by being global and managed using very smart software systems. Contract manufacturing has pushed the boundaries of collaboration between the commissioning multinational brands, suppliers and many ecosystems of manufacture and fulfilment.

Apple manufacturing and marketing since the iPhone launch in January 2007 is probably the most well-known example.

In this new generation of manufacturing and supply chain, ICT is core to almost all development and also to competition. This creates complexity and requires that the professionals who design and manage supply chains are



Edward Sweeney, director of learning at the National Institute for Transport and Logistics (NITL) MAURA HICKEY

equipped with a matching level of skill and knowledge, according to Edward Sweeney, director of learning at the National Institute for Transport and Logistics (NITL) and a recognised international expert.

"Supply chain configurations have become ever more virtual as a process of vertical disintegration has taken place," Sweeney said. "Manufacturers and retailers and service suppliers today will almost universally focus on their core business and competencies. Supply chain activities that are deemed to be non-core are outsourced, often all the way from detailed design of a product concept to ultimate delivery to the relevant consumer outlet or channel."

Sweeney said that the old Henry Ford dictum that 'You have to own it to control it' had been replaced by the logic that the really essential element to manage is your relationships with key supply chain partners. That is the real control, not the minutiae of the systems.

"All of this has implications in terms of the knowledge and competencies required by supply chain designers and managers, as well as by everyone involved in the operational execution of supply chain plans," Sweeney said. "The increasing complexity of 21st-century supply chains and their operating environments requires leaders and experts who are equipped with a high level of knowledge across a range of

domains.

"The sophistication required in the design, planning and execution of supply chains – not to mention their constant change – is a real challenge. The growth in recent years in postgraduate education and other advanced learning programmes in SCM is a reflection of this."

It also serves to remind us that business and its supply chains are fundamentally all about people, according to Sweeney.

"They are the soft wiring, the managers who are technically adept at managing the hard wiring elements of structures, systems and technology," he said. "Companies can have the most advanced methodolo-

gies and technologies, and the most sophisticated processes and systems, but these can never achieve their true potential without the knowledge, skills and competencies of supply chain professionals."

It has long been recognised that shifting away from a traditional functional orientation is one of the keys to putting modern SCM theory into practice. The traditional approach had a strong internal focus and was driven mainly by the need for administrative efficiency.

SCM today requires a very different orientation and a strong focus on the creation of customer value. That in turn comes from smarter and more sophisticated business processes that often cut across tra-

ditional functional and company boundaries.

"The key driver today, of course, is the hyper-competitive market places across most sectors," Sweeney said. "Customers are becoming more discerning and demanding, so higher levels of service and quality have to be delivered at more competitive prices. Business has to change and improve. Change, improvement and innovation are continuous and basic to competitiveness."

"The 'lean enterprise' and 'world-class manufacturing' concepts are still utterly valid, but today it is world-class SCM that characterises the most successful global brands in all sectors. For example, we now see high levels of intelligent automation combined with deeper analytical capabilities, even in real time, to improve efficiencies and profitability while reducing friction and costs across our supply chains."

"The supply chain professionals of the 21st century, and we have a strong cohort in Ireland and need even more, have to be competent to manage multi-faceted change processes in complex supply chain environments. In fact, supply chain has emerged as a very important professional competency and specialist career," he said.

"The knowledge and skills needed range across international business, especially in relationship management, ICT development and deployment and continuous change management. This is in addition to the more traditional SCM areas such as shipping, warehousing and physical distribution management."

There has been enormous development in ICT systems to support the management of supply chains.

"Integrated information flows are critical to the success of global and virtual supply chains," said Sweeney. "It is hard to imagine a contemporary supply chain being managed without a sophisticated ICT platform."



Dr Con Sheahan, senior lecturer in Enterprise Performance Modelling, Enterprise Research Centre, University of Limerick SEAN CURTIN

Enterprise at the highest level

By Leslie Faughnan

The links between industry and our third-level institutions, perhaps especially in the high-tech and software sectors, continue to grow and thrive. The University of Limerick (UL) and its Enterprise Research Centre (ERC) offer a particularly successful example.

"UL has an ongoing partnership with industry and we are directly involved with major international enterprises in specific, practical projects as well as research and well-targeted diplomas and degrees," said Dr Cathal Heavey, co-director of the ERC and head of the Design and Manufacturing Technology department.

"Innovation and ever more powerful systems technology are now core in today's manufacturing sector. Advanced ICT is the platform for the next-generation enterprise."

"For example, we are working with Intel and other manufacturers in applying sophisticated analysis and mathematical modelling techniques to manufacturing control and yield optimisation in semiconductors," he said.

"The ERC also participates in the Irish Centre for Manufacturing Research (ICMR) technology centre examining how smart ICT systems can be more widely used to support advanced manufacturing and supply chain systems."

Dr Con Sheahan is a UL senior lecturer specialising in enterprise performance modelling who is involved in a programme for product development from conception or brief right through the produc-

tion and supply chain processes.

"In essence, we work in applying data analytics and modelling to the challenges involved in today's total integrated supply chain," Sheahan said.

"Next-generation analytics make it possible to run simulations or models to predict future outcomes rather than to simply provide data about past interactions. It will be increasingly possible to do these predictions in real-time to the extent of supporting individual business actions."

Sheahan is also involved in several EU-sponsored projects in collaboration with other European third-level institutions such as Charles University in Prague.

"That project is about developing software modelling and analysis tools for business decision-makers from SME level up to enable them to decide what combination of opportunities will deliver the best results," he said.

The 'ValuePOLE' project aims to deliver a practical decision support tool with modelling and predictive analytics capabilities.

"It is already in the course of being commercialised as a software product, by Entellexi, here in Limerick," Sheahan said. "There is very little available for such decision support at the small business level because of the volume and complexity of the variables, even in an SME."

Other methodologies and tools continue to contribute to efficiency and cost savings, like Lean manufacturing.

"But now we believe we are developing software to cut straight to the bottom line," Sheahan said.

Training is key to supply chain success

By Leslie Faughnan

With NITL as the national centre of excellence, there are other resources for post-experience training in the related fields of logistics and supply chain management. Both the Chartered Institute of Logistics and Transport (CILT) and the Supply Chain Management Institute (IPICS) have active

education and examination programmes and are affiliated to internationally recognised professional bodies.

CILT promotes the 'art and science of logistics and transport' and runs a range of courses. More than 3,500 students achieve certification and qualifications through CILT each year. IPICS is an international associate of APICS, the Association for Operations Management (USA), which has developed from production and inventory control to

embrace supply chain, production, inventory, materials management, purchasing and logistics.

Jim Kearney, education and training manager with CILT, pointed to the pivotal role of ICT in supply chain management.

"But many organisations often miss the point concerning that pivotal role that information and communications technology (ICT) plays in either fragmenting or integrating supply chains," Kearney said.

"Working with many organisations over the years has revealed that too often, end-to-end supply chain integration is not realised."

"We have seen the application of too many complex ICT systems and processes add additional layers of complexity. That can and has led to distorted supply chain visibility rather than the excellence everyone aspired to."

"The only way to counteract complexity in supply chains is to implement enterprise solu-



Jim Kearney

tions to best match the needs of the organisation, its suppliers and customers.

"We have learned to be cautious about enterprise solutions based on the logic of enterprise resource planning (ERP). These solutions attempt to integrate all departments and functions across a company into a single computer system that can serve all those different but specific needs," he said.

"Whatever the particular software systems, the only way to synchronise and integrate your supply chains is to embrace a clear methodical mindset of the benefits expected from that pivotal role of ICT in the supply chain."

Only when organisations adopted this mindset would they reap the rewards of genuine supply chain integration.

"In other words, if we change the ways we do things we can eliminate waste, over-processing and complexity from the supply chain," Kearney said. "That is where SCM done right ultimately delivers sustainable profitable growth and competitive advantage in the value chain."

For more information on CILT, visit cilt.ie; for more on IPICS visit ipics.ie

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