Mass production: the step change of the 21st Century

When we ask the question: 'What was the development that changed the face of industry during the 21st Century?', we get a number of answers. Some will say the computer, others the internet and still others will say globalisation; but perhaps due to my age my answer is mass production. When Henry Ford developed mass production at the Highland Park plant in Michigan in 1913 he changed the face of industry forever.

In 1925, the River Rouge plant near Michigan produced about one Model T per minute with a total lead-time from steel-making to finished car of about three days and nine hours (33 hours), which outperformed every other manufacturing operation of its day and would be the envy of many manufacturing businesses today. In fact, in 1929 Kiichrio Toyoda visited the River Rouge plant to learn how to make automobiles. What the Toyoda family saw at River Rouge would drive their thought processes as they built what was to become the largest and most profitable automobile manufacturer in the world (Toyota). In the meantime, Ford and the rest of the US auto industry took a different approach to manufacturing and supply chain management, which led them to being increasingly unable to compete or be profitable. How different things would have been if western industry had adopted the principals of integration and integrated the concepts of just-in-time/lean, ERP/MRPII and TQ/Six Sigma – see Figure 1. Focusing on the sweet spot of world class manufacturing could have led to a very different story.

If we now look to the future and imagine asking the same question: 'What was the big development that changed the face of industry in the 21st century?', I believe the answer will be mass customisation. Of course, I for one will not be around to know the answer, but I firmly believe that those companies that crack mass customisation in the same way that Henry Ford cracked mass production will be the winners. If this is combined with my belief that the future competition will be supply chain vs supply chain then we can create a new sweet spot – see Figure 2.

In practically every sector, product life cycles are getting shorter and our desire for more options and greater flexibility is increasing. Our expectation of lead-time is almost instantaneous and technologies such as 3D printing and drones have enormous potential for supporting shorter lead-times and customisation/personalisation. My column 'Fast Fashion' – *Focus*, April 2017 – that talked about ZARA was an insight into the product life cycle direction of travel.

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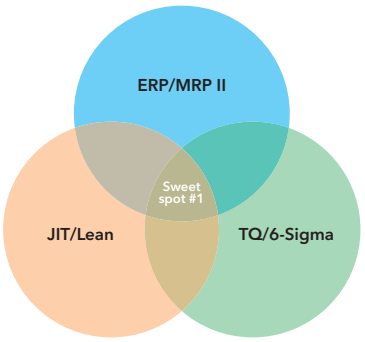
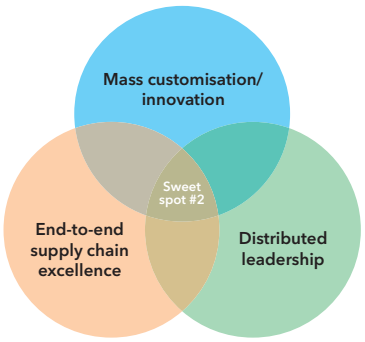
Of course, the concept of customised products is not new, but mass customisation would enable customer specific products to be delivered in short lead-times and at prices that will compete with standard products. Nike, with its customised running shoes, Dell Computers and selected playlists in the music industry all demonstrate the journey towards customisation. Design for manufacturability and late configuration almost at the point of consumer purchase will become even more critical in the future than they are today. Technology and process will play a big part in the journey, but it will also require a mind-set change (culture) that places the customer as king and a focus on a third sweet spot – see Figure 3.

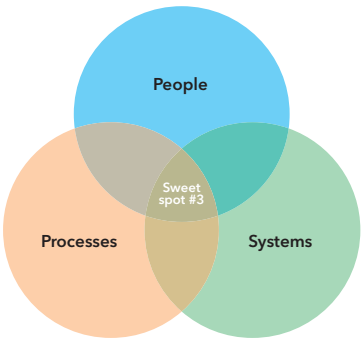
If the UK can crack mass production post-Brexit, then UK manufacturing could become the envy of the world and change the face of industry.



The sweet spot of manufacturing
Figure 1



A new sweet spot
Figure 2



The customer as king
Figure 3

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