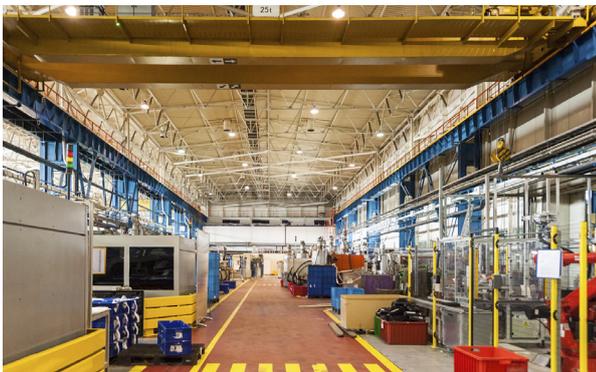




The Growth of Services in Manufacturing Networks

Manufacturing and services have long been linked together in certain industry sectors. For example automotive manufacturing firms are closely linked to financial services, retailing and maintenance firms as well as partners for the disposal and recycling required by the End of Life Vehicles Directive.

In the consumer products area currently, product design must extend well beyond physical and functional characteristics of the product and cover more subjective aspects such as branding, corporate identity, packaging, symbolism, advice and guidance. Product management often draws on engineering, ecology, psychology, economics, anthropology, IT, Human Resource Management, operations management, finance, graphic design etc.



A 2005 OECD study found that the distinction between manufacturing and services was becoming increasingly blurred. The services sector is more independent from other industries than manufacturing. Manufacturing industries interact much more strongly with other industries, both as providers and as users of intermediate inputs.

At the European level, manufacturing firms have been increasingly offering services along with physical products. Between 1995 and 2005, the share of services in the output of manufacturing industries increased in most European countries. The highest service shares are found in small

countries with high R&D intensities whose service output consists mostly of knowledge-intensive services.

Manufacturing sectors with high innovation intensity also have the highest share of firms offering services, the highest turnover gained from services and the highest number of different services offered by the average firm. Examples of these industries are electrical and optical equipment, machinery and the chemical and pharmaceutical industries.

Firms which have launched products new to the market during the last two years are more likely to have higher shares of turnover from services compared to companies with no products new to the market. Companies which generate a high proportion of revenue from services include: Rolls Royce (49%); ST-Ericsson (38%); Atlas Copco Group (43%); Tyco (40%); Alstom(26%) and Arcelor Mittal (29%).

These themes are developed in a major report from the UK Government Office for Science published at the end of 2013, *The Future of Manufacturing: A new era of opportunity and challenge for the UK*. The report identifies the megatrends that are bringing manufacturing and service together:



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- the increasing demand for sophisticated solutions rather than simple products
- the increasing demand for outcomes rather than outputs
- the replacement of transactions by relationships
- the move from supply chains to value networks

McKinsey Global Industries suggest that future expanding markets in the global economy will be driven by an increasing number of middle class consumers who will want individualised products and whose tastes will change rapidly. These consumers will use online technologies, especially mobile, to search markets and to make purchases. The networks which will satisfy these expanding markets will use technology to boost their agility.

In December 2013 the Office of National Statistics published some interesting results about the impact of e-commerce on the UK economy. The manufacturing sector is a leading user of e-commerce. Between 2010 and 2012 the value of e-commerce sales by manufacturing increased so that it is only just behind the leading UK sector – the wholesale sector. Both are well ahead of the retail sector. Manufacturing accounts for nearly half of the sales in the UK using Electronic Data Interchange with a total of £145bn of EDI sales. The UK is near the top of the EU ranking for the proportion of total turnover taken by e-commerce. In terms of the MGI vision of growth markets, the increasing involvement of UK manufacturers in e-commerce is very much a positive development.

The Centre for International Manufacturing (CIM) at Cambridge has carried out important research on the development of the service dimensions of product offerings and have found that this often involves the development of a network of multiple partners. The researchers have found that different partners in these networks may well have a very different view of strategy and key operational processes from the other members.

CIM suggest that network leaders should explicitly develop their strategy so that they build a network which genuinely meets customers' service needs linked to their products. To achieve shared goals and objectives across the network there needs to be a common vision and a common language. The relationships in the network should be built on trust and specific role definitions.

Mechanisms have to be put in place for the joint ownership of decisions and collective responsibility of outcomes. Across the network there should be co-ordinated workflow and synchronised planning. Value stream mapping is an important tool for achieving overall service improvement. Networks should be agile with the capability to meet individual customer requirements.

CIM conclude:

The ability to identify and manage 'capability' has become increasingly important, especially with these 'capabilities' playing a critical role in the acquisition process. A lot of acquisitions fail because the assessment of capabilities and the approach taken during the acquisition process towards capabilities is inadequate. Capability features such as skills, knowledge, technology and organisational processes are an integral part of the emerging framework, within the industrial service network design context.



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Aston Business School have also researched the integration of manufacturing and service functions. While manufacturers focus on quality cost and delivery, advanced services contracts are about performance, availability, reliability and cost. Aston conclude that manufacturing companies moving into services should retain capabilities in design and production to keep costs under control, manage assets effectively and ensure responsiveness to changing user needs.



The UK economy is well placed to construct product/service networks given the size and strength of its business and professional services sector. This sector is approximately the same size as UK manufacturing and accounts for about 11% of the UK economy. It is forecast to expand by 4% per annum up to 2020. Globally it is second only to the United States and has an annual trade surplus of £20bn. In 2013 the Coalition published a national strategy for professional and business services.

Industry Forum has extensive experience in improving networks which span manufacturing and service operations and can deploy effectively a variety of performance measures and standards which address key aspects of each.

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