

Manufacturing and Innovation

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Manufacturing and the Value Chain

Traditionally manufacturing was seen as the 'physical' process but increasingly it means the full cycle

Research>Design>Production>Distribution>Service

This makes it possible to be in manufacturing without owning a factory!

Manufacturing – a definition

“The full cycle from understanding markets through product design, production, distribution and related services within an economic and social context”

ARM – microchips

marketing>design>production>distribution>service

- ARM designs used in 75% of mobile phones
- Close to global customers and OEMs
- ‘Fabless’ business model
- Substantial process knowledge
- Successful - but repeatable?



GKN – Automotive components

marketing>design>production>distribution>service

- **GKN has 40% of world market for constant velocity joints**
- **Leadership is enabled by production capability linked to advanced design**
- **Close integration with customers**
- **Local production facilities worldwide**



Zara - clothes

marketing>design>production>distribution>service

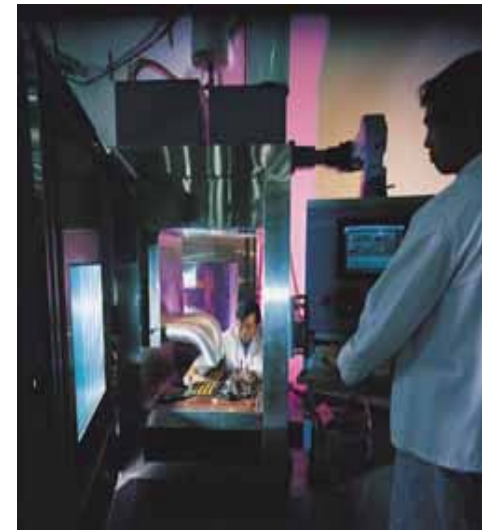
- **Spanish clothes maker Zara owns all production capability**
- **Products in own shops change every 2 weeks**
- **Production can be flexed to respond to demand**
- **Competitors can't follow!**



Solectron – Electronics

marketing>design>production>distribution>service

- **Global electronics production capability**
- **Acquired and integrated OEM facilities**
- **Value capture through economies of scale and flexibility**
- **Moving to design and service**



Rolls-Royce – Aeroengines

marketing>design>production>distribution>service

- Responding to customer needs
- Rapid growth in market share
- ‘Totalcare’ service model
~50% of revenues
- Implications for design and production



So for companies, production *may* link to..

- **Research and Development**
- **Design**
- **Responsiveness**
- **Value capture**
- **Service**

as well as

- **Cost**

Manufacturing in a global context

- **Global demand is rising steadily**
- **US demand for goods growing relative to services**
- **‘Disintegration’ of stages in *some* value chains**

BUT

- **Interdependencies between stages continue**
- **Internationalisation increasing complexity**
- **Markets and capabilities highly volatile**
- **New processes and products demand new skills and new technologies**

and at national and regional levels..

- **Production capability may be necessary to enable scientific and technical innovation**
- **Capture value from science and technology**
- **Attract and anchor inward investment**

BUT

- **Company level decisions do not translate easily to industry level**
- **Economic models do not readily capture linkages**

So what about the Eastern Region?

- **Strong manufacturing economy**
- **Good balance of business types and sizes**
- **Strong ‘nodes’ of research and production**

But

- **Do we understand global trends**
- **Do we appreciate the potential of production**
- **Are we developing production IPR**

Opportunities and Threats

Opportunities

- **Enhanced value capture from research base**
- **Development of valuable and protectable IPR**
- **Ability to co-ordinate global networks**

Threats

- **Progressive loss of high value activities**
- **Difficulties in accessing global networks**
- **Undermining of service base**

Actions for East of England

- **Develop a sector by sector understanding of the role of production in the economy**
- **Enhance ‘early stage’ production capability**
- **Maintain control - not necessarily ownership - of production capacity**
- **Increase skills in global production co-ordination**
- **Strengthen production *knowledge, capability and awareness***

The Opportunities

- **for manufacturing to be seen as one of the best ways of capturing value from innovation**
- **for the UK to be a major hub in global manufacturing networks**
- **for East of England to be a model manufacturing region combining education, research and practice to grow economically and live sustainably**