

# briefing

## Tailored approaches to manufacturing footprint strategy

As global economies becoming increasingly interconnected, companies need to develop the most appropriate configuration of international manufacturing plants to maximise access to markets and strategic resources. A structured approach to 'manufacturing footprint' strategy, developed by the Institute for Manufacturing (IfM), has been tailored to help companies to achieve major cost savings and improved customer responsiveness.

### How to guide a tailored solution

For the last six years, the IfM has worked with ten leading companies to apply research-based approaches to international manufacturing networks in the context of live strategy projects. This has led to a unique process and toolkit for determining manufacturing footprint strategy that can be tailored to fit any industry sector and context. The ten major collaborations – illustrated below – are anonymous due to the confidential nature of the projects. However, the work has led to some general observations that may be helpful to other companies considering similar projects.

### 1. Manufacturing networks are inherited not designed

Most global manufacturers do not get the chance to design their footprint from scratch. They tend to have inherited a network which has evolved over time as a result of ad hoc market entry strategies and multiple mergers and acquisitions. The typical result is a collection of plants that lacks cohesion and is better suited to serve yesterday's markets than tomorrow's. The benefits from optimisation can be significant, but the challenges and risks are equally daunting. The variables that determine the design of the future network are complex and depend on many external and internal factors.

### 2. The IfM approach is universal but needs significant tailoring

The ten collaborations covered a wide range of industry sectors and strategic contexts and the general approach is transferable but careful tailoring is required to fit each environment. Two simple examples are:

- The basis for make-or-buy analysis varies between product and process-based industries and getting this classification right is fundamental. Effective make-or-buy guidelines can have a major impact. In one case study 40% of product families were identified as non-core; these could be outsourced to strategic partners (thereby supporting significant consolidation).
- The critical criteria that determine global footprint design vary widely. For example, some firms will see the economic range of products (how far they will travel) as a determinant factor, while for others it is the need for economies of scale in production that is more important. Balancing transport costs, economies of scale and the need for customer responsiveness can have very different outcomes.

In general, there seem to be no fixed archetypes for footprint strategy – the solution needs to fit uniquely with the context and competitive positioning of each company.

	Large vehicles	Food packaging	Food equipment	Transport services	Speciality chemicals	Hydraulic pumps	Electrical devices	FMCG	Plastic products	Petrochem
<b>Scale</b>	 \$40bn, 110 plants	 \$4bn, 50 plants	 \$1bn, 12 plants	 £2bn, 17 plants	 \$2bn, 21 plants	 \$3bn, 14 plants	 \$15bn, 200 plants	 \$5bn, 20 plants	 \$1.5bn, 45 plants	 \$10bn, 60 plants
<b>Outcome</b>	10 year evolutionary strategy	5 year aggressive realignment	2 year turnaround plan	5 year strategy	5 year consolidation /pre-merger plan	Staged evolutionary strategy	Footprint design model	Continuous strategy process	5 year re-configuration plan	Ideal future network
<b>Hard benefits</b>	Significant cost savings	\$50m pa declared cost savings	Business survival	20% cost saving	Significant cost savings	Access to growth markets	Significant cost savings	Enablement of global expansion	Significant cost savings	Fundamental shift in network approach
<b>Soft benefits</b>	New processes across 30 SBUs	120 top managers aligned with change	Minimised business disruption	M&A integration framework	Refocusing of core business	Trained trainers for staged roll-out	Post M&A optimisation	Pre-empt need for periodic restructuring	Consensus across complex organisation	Distillation of key drivers

Ten tailored applications of the IfM approach

Benefit	Examples
<b>Cost reduction (10-20%)</b>	A key driver in each case. Typically 10-20% cost reduction was achievable. In one case, the company declared \$45-55m annual cost savings three years after publicly announcing the strategy.
<b>Access to emerging markets</b>	Considered equal in importance to cost. Most of these network optimisations involved reshaping of the footprint towards emerging economies (for accessing markets rather than low cost labour).
<b>Performance through better focus</b>	All the case studies introduced a range of differentiated plant roles as a means of improving performance in cost, quality and responsiveness. The logic for determining the plant roles varied depending on product, process and market attributes.
<b>Innovation</b>	The need for the network to support ongoing innovation was an achievable objective in many cases. One company managed this by a co-ordinated commitment to new quick-changeover production technology in designated plants to provide ultra-responsive service (sold at a premium).
<b>Link with Mergers &amp; Acquisitions (M&amp;A)</b>	Most of these companies are expanding via M&A and recognise the need to align this with footprint strategy. One firm enshrined footprint optimisation as part of its M&A process regarding both pre-deal valuation and post-deal integration.
<b>Network agility</b>	All the companies recognised the need to develop a network that is flexible in response to unplanned changes (e.g. market or macro-economic shifts). This has led to increased harmonisation of products and processes and new global roles in co-ordinating transfers.
<b>Sustainability</b>	The importance of developing sustainable global networks has increased due to rising fuel costs and rising consumer and political pressures. More attention is being paid in the footprint design process to maximising resources and reducing impacts like transportation cost. The medium-to-long term vision for most of the companies involves locating production closer to market. However, the broader implications of sustainability in this context are not fully understood and require further attention.

*Benefits observed in the applications of the approach*

**3. Benefits are not just cost savings**

The range of typical benefits achieved or targeted in the case studies are outlined in the table above. Cost reduction was, unsurprisingly, a major objective in each case, but this was balanced by the need to improve access to emerging markets alongside a set of additional strategic factors.

**4. Consultation and building consensus is key**

Footprint strategy remains high-stakes in complex organisations. This is natural for strategies that must cross regional, product and functional accountabilities within the matrix structure. The approach to strategy development needs to engage with a broad range of internal stakeholders to help deal with the politics and emotion. This challenge cannot be solved by data analysis alone as the variables are simply too complex. The approach needs to tap the accumulated wisdom and judgment of the management team to determine the guiding principles. Data analysis can then serve to explore and validate the potential outcomes.

**5. Taking a long-term view**

Many companies have a two to three year strategic horizon, usually driven by the short-term needs of shareholders. Footprint strategy, however, requires a long-term perspective and in all these case studies the companies' senior teams were urged to consider a much longer strategic horizon than usual. Major investment decisions for new production lines and complete plants are likely to be required. Accountants model such decisions over

at least 10 years and engineers expect possibly 20 years of life from the assets involved. Taking a long term view liberates thinking beyond the optimisation of what we have today and may result in a future vision that looks very different.

**6 Separating 'what to make' from 'where to make'**

One common problem in historical footprint strategy thinking has been the merging of 'outsourcing' and 'offshoring' as strategic options. The IfM approach separates these issues so that 'what to make' can be judged independently of 'where to make'. 'What' deals with establishing the core manufacturing competences of the business; 'where' deals with locating those operations. The two issues then need to join up and this may require some iterative thinking. The overall result is a range of more creative and subtle strategic alternatives including a 'make some' approach, different strategic outsourcing options, regionally-tailored approaches and postponement strategies.

**7 Understanding the 'footprint levers'**

One fundamental question to be addressed in footprint strategy is 'how will the network perform as more than merely the sum of its parts'. Considering this question has led to the definition of a set of possible 'footprint levers' i.e. ways of creating network-associated benefits over-and-above those derived from running an independent set of plants. These benefits can be achieved through intrinsic network design features or modes of operation. The IfM has observed more

than 20 different 'footprint levers' which have been used in unique combinations in the different case studies. One example of such a lever is designing the footprint for short lifecycle products. This involved shaping the network around three types of plants – prototyping, production scale-up and mass production – to match the different phases of the lifecycle.

**8 Developing a continuous process**

One final observation from the ten case studies has been a general shift away from 'project' to 'process' based thinking regarding footprint strategy. In the past, many companies have considered this challenge as a discrete project, often resulting in an intense restructuring programme. One problem with this is that it tends to drive a reactive approach, where footprint strategy is typically only high on the agenda when there is an urgent need for cost reduction. Two of the case studies made significant progress in defining a continuous process based on innovative modelling techniques. This analyses forecast demand against critical market, product and production criteria to recommend the ideal future footprint.

The overall conclusion of these applications is that footprint strategy needs to be a healthy balance of analytical science and expert judgment where the precise needs of each company are central to the approach.

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