Creating the Agile Supply Chain

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One of the biggest challenges facing organisations today is the need to respond to ever-increasing levels of volatility in demand. For a variety of reasons product and technology lifecycles are shortening, competitive pressures force more frequent product changes and consumers demand greater variety than ever before.

To meet this challenge the organisation needs to focus its efforts upon achieving greater agility such that it can respond in shorter time-frames both in terms of volume change and variety change. In other words it needs to be able quickly to adjust output to match market demand and to switch rapidly from one variant to another. To a truly agile business volatility of demand is not a problem; its processes and organisational structure as well as its supply chain relationships enable it to cope with whatever demands are placed upon it.

Characteristics of the Agile Supply Chain

Agility in the sense of the ability to match supply with demand is not necessarily synonymous with ‘leanness’. Much has been written about lean manufacturing - often with reference to the automobile industry. The lean approach to manufacturing seeks to minimise inventory of components and work-in-progress and to move towards a ‘just-in-time’ environment wherever possible. However, whilst ‘leanness’ may be an element of ‘agility’ in certain circumstances, by itself it will not enable the organisation to meet the precise needs of the customer more rapidly. Indeed it could be argued that, at least until recently, the automobile industry, for all its leanness is one of the least agile industries around. Webster’s Dictionary makes the distinction clearly when it defines lean as ‘containing little fat’ whereas agile is defined as ‘nimble’.
To be truly agile a supply chain must possess a number of distinguishing characteristics as Figure 1 suggests.

![Figure 1: The agile supply chain]

Firstly, the agile supply chain is *market sensitive*. By market sensitive is meant that the supply chain is capable of reading and responding to real demand. Most organisations are forecast-driven rather than demand-driven. In other words because they have little direct feed-forward from the marketplace by way of data on actual customer requirements they are forced to make forecasts based upon past sales or shipments and convert these forecasts into inventory. The breakthroughs of the last decade in the form of Efficient Consumer Response (ECR) and the use of information technology to capture data on demand direct from the point-of-sale or point-of-use are now transforming the organisation’s ability to hear the voice of the market and to respond directly to it.

The use of information technology to share data between buyers and suppliers is, in effect, creating a *virtual* supply chain. Virtual supply chains are information based rather than inventory based.
Conventional logistics systems are based upon a paradigm that seeks to identify the optimal quantities and the spatial location of inventory. Complex formulae and algorithms exist to support this inventory-based business model. Paradoxically, what we are now learning is that once we have visibility of demand through shared information, the premise upon which these formulae are based no longer holds. Electronic Data Interchange (EDI) and now the Internet have enabled partners in the supply chain to act upon the same data i.e. real demand, rather than be dependent upon the distorted and noisy picture that emerges when orders are transmitted from one step to another in an extended chain.

Shared information between supply chain partners can only be fully leveraged through process integration. By process integration is meant collaborative working between buyers and suppliers, joint product development, common systems and shared information. This form of co-operation in the supply chain is becoming ever-more prevalent as companies focus on managing their core competencies and outsource all other activities. In this new world a greater reliance on suppliers and alliance partners becomes inevitable and, hence, a new style of relationship is essential. In the ‘extended enterprise’ as it is often called, there can be no boundaries and an ethos of trust and commitment must prevail. Along with process integration comes joint strategy determination, buyer-supplier teams, transparency of information and even open-book accounting.

This idea of the supply chain as a confederation of partners linked together as a network provides the fourth ingredient of agility. There is a growing recognition that individual businesses no longer compete as stand-alone entities but rather as supply chains. We are now entering the era of ‘network competition’ where the prizes will go to those organisations who can better structure, co-ordinate and manage the relationships with their partners in a network committed to better, closer and more agile relationships with their final customers. It can be argued that in today’s challenging global markets, the route to sustainable advantage lies in being able to leverage the respective strengths and competencies of network partners to achieve greater responsiveness to market needs.
**From supply chain to demand chain**

There is a fundamental difference between the traditional approach to supplying product to markets and the newly emerging model we have described here. The traditional approach is based upon optimising production, handling and transportation through the calculation of ‘economic batch quantities’. It is essentially a ‘push’ type of system were product is produced ahead of demand, normally against a forecast and is then held in the market place awaiting orders. The model suggests that ideally the supply chain should become a ‘demand chain’ - in other words, everything that is moved, handled or produced should ideally be in response to a known customer requirement. A supply chain tends, by its very nature, to focus on creating efficiency in terms of the flow of material from source to user. On the other hand a demand chain is focused more on effectiveness in the sense that it seeks to be market-driven responding to the needs of the market more rapidly.

The key to this transformation - from supply chain to demand chain - is agility.

Table 1 summarises the major differences between the traditional model and the new approach to supply chain management.

**Using the supply chain to compete**

It is becoming increasingly clear that the changed conditions in the global marketplace demand a much more agile response from the organisation and its partners in the supply chain. The idea in the past was that marketing success was based upon strong brands and innovative technologies. Today brands and innovation are still critical but they are not enough. Instead the winning combination is strong brands and innovative technologies supported by an agile supply chain capable of responding more rapidly to volatile demand.
True competitive advantage is gained when the organisation is able to consistently meet the needs of customers more precisely and in a more timely way than anyone else. As the realisation grows that it is no longer company competing against company but rather supply chain against supply chain, then the prospect of market leadership will surely be enhanced.

### Agile supply chain management versus traditional approach

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<thead>
<tr>
<th>Traditional Approach</th>
<th>Agile Approach</th>
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<tbody>
<tr>
<td>• Stock is held at multiple echelons, often based on organisational and legal ownership considerations</td>
<td>• Stock is held at the fewest echelons, if at all with finished goods sometimes being delivered direct from factory to customer.</td>
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<tr>
<td>• Replenishment is driven sequentially by transfers from one stocking echelon to another.</td>
<td>• Replenishment of all echelons is driven from actual sales/usage data collected at the customer interface.</td>
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<tr>
<td>• Production is planned by discrete organisational units with batch feeds between discrete systems.</td>
<td>• Production is planned across functional boundaries from vendor to customer, through highly integrated systems, with minimum lead-times.</td>
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<tr>
<td>• Majority of stock is fully finished goods, dispersed geographically, waiting to be sold.</td>
<td>• Majority of stock is held as ‘work in progress’ awaiting build/configuration instructions.</td>
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**Table 1**