Shortening Product Life Cycles?

Tarun Goyal - April 16, 2001

High-tech manufacturers are constantly hounded by customer demands for smaller, lighter, faster and more powerful devices. Companies are continuously introducing new models and adding science-fiction type features to enhance their product line.

The product life-cycle curve in electronics today is steeper than ever before, indicating that an increasingly large proportion of sales occur soon after the introduction of the product. A narrow window of opportunity exists to earn profits on a new product before competition catches up and margins begin to shrink. It is not only imperative for companies to be first-to-market with their product, but also to be able to ramp-to-volume quickly to meet early product demand. With shortened life cycles, companies cannot afford to miss out on the initial bang, and stock-out becomes an expensive proposition.

The electronics industry was burned in the 1980s by adopting a strategy of building large inventories to counter this steep life-cycle curve, only to later find itself in a situation of low market demand and a glut of capacity. Innovation can now become a liability with firms holding too much capacity and inventory. Hence, the industry is extremely inventory- and capacity-shy and has since then taken the approach to minimize investments at every point in the chain.

Here then is the balancing act: To reduce inventory and at the same time prevent stock-outs.

The industry is responding to these challenges by taking several measures. Component manufacturers are pushing for more and more standardization in parts to extend the useful life of components. They are trying to stretch the product life cycle by penetrating international markets. However, the biggest impact to effective life-cycle management and long-term profitability can accrue by better managing the entire supply chain.

High-Velocity Supply Chains
The electronics industry is characterized by a highly fragmented supply chain. Parts and products change hands constantly from component manufacturers to component distributors, contract manufacturers, system distributors, resellers and finally to the user. This fragmentation leads to the so-called bull-whip effect with too little or too much inventory and poor business performance—lower sales and poor customer responsiveness. To counter these industry challenges, it is extremely important for trading partners to collaborate and manage relationships. Successful companies will be characterized by membership in tightly integrated high-velocity supply chains.

High-velocity supply chains are marked by a rapid flow of products and information between their constituents. Internet-based technologies available today make a high level of collaboration between trading partners possible. Companies can eliminate latencies through a flow of information, products, and cash between customers, OEMs, component manufacturers and their suppliers. This article focuses on ‘Buy’, 'Make' and 'Move' functions. The Internet impacts each of these processes by improving the flow of information and increasing opportunities for collaboration between various entities in the supply chain.

Buy

Customers have used the Internet to configure, buy and comparison shop for gadgets and devices online. For corporations, e-procurement tools have become popular only recently to help them manage their purchasing. The procurement function as it relates to enterprises can be classified largely into indirect and direct procurement.

Indirect procurement relates to the buying of supplies that are not directly used in making the product. Dominant software players in this space include Ariba and Commerce One. Direct procurement relates to the buying of material and components that are used in the production of products such as ICs and hard drives. i2 technologies has announced an Internet-enabled supplier relationship management (SRM) product that facilitates direct procurement.

Companies have already started using the Internet to facilitate indirect procurement to reduce maverick buying (by employees not following company guidelines) and to reduce costs by shopping for the best price. Marketplace service providers in this space provide access to a large online trading community that makes shopping for price and finding new suppliers much easier.

Make

High-tech manufacturing, right from the initial development of semiconductor chips to circuit boards and final product, is an extremely complex process, characterized by the outsourcing of components and assembly functions. The Internet can significantly help companies share information in such a distributed environment.

There is a trend today in companies to use the Internet to share sales forecasts based on primary sales information at the end-user level. Participants in the high-velocity supply chain will leverage Internet-based tools to provide visibility to real-time information about their production schedules and inventory levels to their trading-partner community.

Collaboration of this magnitude within integrated supply chains will create a sustainable competitive advantage in the future. Trade Matrix tools from i2 and Networks from Manugistics are designed to provide the technology to facilitate such partnerships.

Move

Electronics-industry supply chains stretch across boundaries with significant component
manufacturing and assembly occurring in the Asia/Pacific Rim and sales in almost every corner of
the world. Components and products are usually shipped internationally using air-freight literally
half the way across the world. Different agents and freight forwarders handle international and
domestic legs of the shipment, documentation, customs clearances and other formalities.

Managing this process today is difficult with little or no visibility into the status of the shipment from
the moment it is picked up by the freight forwarder to the time it arrives at its destination.
Suppose a shipment of ICs takes off from Taiwan to reach an OEM in Virginia on Feb. 1. Come Feb.
1 evening, the shipment does not show up in Virginia. What happened? Will the shipment make it
tomorrow? Is this shipment critical to meeting the production plan tomorrow? Is it merely a customs
delay, or did the shipment not make it to the airport on time to get on the airplane in Taiwan?

More and more shippers and consignees are selecting freight handlers that provide 'FedEx-type'
Internet tracking to provide visibility to in-transit shipments. However, knowing each shipment
location for a consignee that receives thousands of packages can be overwhelming. Therein comes
the role of sophisticated Internet-based visibility tools that can assimilate such information and
generate exceptions when such delays would cause downstream problems such as starved
manufacturing lines or delayed orders. Notifying the correct people across different companies
about these exceptions as quickly as they occur has great of value. In the future, companies will
leverage such technologies to sort and prioritize exceptions, making it possible for constituents to
effectively deal with the critical ones. These intelligent Internet-enabled systems will also suggest
alternate sourcing arrangements, as they will have visibility to inventory and schedules at various
points in the supply chain. Several technologies from vendors such as Descartes, Capstan, Optum
and Viewlocity are available in this space, to name a few.

In this article only three facets of the supply chain have been discussed to give a feel for e-
technologies that will continue to impact the supply chain. The Internet will empower the trading-
partner community to build more flexible supply chains that are more responsive to customer needs.

Realizing the vision of a high-velocity supply chain will be a daunting task. Key players must identify
areas that will benefit the most by the increase in the flow of information and collaboration between
trading partners. A good starting point would be to increase forecast accuracy by collaborating and
communicating changes in schedules. Several exchanges are popping up catering to this industry
and providing tools and technology for trading partners to effectively collaborate. Technology is the
easy part; getting people to change and adapt to the new metrics and workflow will be a challenge.
Initiating these collaborative processes with your trading community is essential to improve overall
business performance. Successful supply chains of the future will be those that master the art of
collaboration today.

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