

Four Megatrends That Will Change Supply Chain Management



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We are now in a market-driven economy, where the individual consumer is the ultimate channel master. This dynamic shift is the third to occur in the past 100 years. The front end of the 20th century was marked by a marketing-driven economy, where marketers and brands were the channel masters due to the relatively limited buying options (when compared with today's standards) and the smaller volume of disposable income available.

In the second half of the 20th century, retailers, previously viewed as mere middlemen, emerged as the channel masters. They owned the data and the direct relationships with the consumers, and—thanks to the efforts of Sam Walton of Wal-Mart, Bernard L. Marcus of The Home Depot and Richard M. Schulze of Best Buy—were able to use this position to gain significant leverage over the manufacturers and suppliers.

The forces of capitalism, or to be more precise, opportunism, guaranteed that competition would flourish in the retail space. This was accelerated by the information revolution of Internet commerce as well as by the great distribution of wealth that occurred in the economic bubble of 1996–2001, leading to the third phase we're experiencing now: where the customer is truly central to the supply chain continuum of strategy and process.

The transfer of power from manufacturers to retailers sparked a series of paradigm shifts in how products are developed, introduced, distributed, serviced and retired. In the multi-enterprise global economy of today and the future, the supply chain is the common denominator across all of these elements. In order to understand these shifts, we must understand the megatrends that directly influence them. **CONTINUED** on Next Page . . .



MEGATREND 1: Mass Customization

In a commoditized world, consumers will increasingly satisfy both their basic and their non-essential needs through their consumption patterns. Progressively, the market adopts a mass-customization model, which allows consumers to customize products by self-selecting their most preferred composition across a predefined selection of modules.

What's happened in the audio-equipment business is a good example. Twenty years ago, a stereo enthusiast who wanted a quality system would make the purchase at a specialized stereo store and pay a premium. Product selection was minimal, and the price was prohibitive for the mass market. The result was that home audio/visual entertainment was available only to those with the economic ability and the know-how to purchase it.

The big-box retailers changed all of that. Today's consumers have access to a wide array of modular solutions with which they can piece together their desired products or services. They can configure their home-entertainment system, for example, based on the specific qualities they are looking for. They can choose from large- or small-screen monitors, projection, liquid-crystal display or plasma, various features among numerous audio components, all the way down to the cabinetry the components are housed in. In this way, they are captains of their own conspicuous consumption.

Customization is now one of the key differentiators in the consumer's buying process. Personal-computer manufacturers such as Dell allow customers to choose the memory size, type of processor, monitor size and other characteristics of their hardware and software, for example. Automobile manufacturers are enabling customers to configure and accessorize their purchases—such as the popular MINI Cooper or Toyota's Scion—with an ever-growing list of options. Home builders provide a wide array of upgrade options. The common denominator across all of these buying experiences is the ability to configure and customize. In essence, consumers are presented with a template of commodity choices. They make the product their own through their personal customization.

How companies manage the customization processes will dictate their ability to both attract and retain customers and to generate profit. A company may offer a number of product modules that can be mass customized as well as levels of choice within those modules. But each option adds complexity to the supply chains underneath it. This forces companies to deal with distributed procurement, fulfillment, manufacturing and distribution at an increasing velocity due to the increased segmentation and volatility in market demand signals.



MEGATREND 2: Globalization and Micro-segmentation

The aging populations of the United States, Europe and Japan will create new marketing challenges and service opportunities. Micro-segmentation of markets will replace traditional macro-segmentation, resulting in the parallel transition from macro-focused supply chains to micro-focused supply chains designed for and serving the individual consumer. Central to this will be the capture and analysis of customer information about product/service use, needs, wants, desires and behavior. Knowledge of the customer down to this level of detail will be seen as mission-critical to the enterprise.

New market opportunities will emerge as the global economic infrastructure enables the establishment of a middle class with increased disposable income, which will, in turn, foster a larger consumer economy. As the economic centers of Europe and North America become saturated, the emerging markets of Brazil, Russia, India and China will continue to explode. Companies that can tap into those markets successfully will own the greatest market share. This shift will force significant change, requiring enhanced trading, market and distribution infrastructures.

A prime example of this is General Motors' presence in China. Since launching the Buick line in China in 1999, GM has invested more than \$3 billion in developing a Chinese footprint of 14 brands. Further investment projections include another \$3 billion to support the introduction of an additional 20 models and an overall increase in production of 145 percent over the next two years. The results of this investment speak for themselves. To date, GM has achieved the number 2 spot behind Volkswagen in this market and has experienced significant gains year after year since its first launches. More important, due to the lower cost of sales in the Chinese marketplace, GM's margins are far more appealing than in the United States, where competition demands significant marketing investment, eroding margin.

In the case of both GM and Volkswagen, the organizations entered the markets early and invested in the infrastructure. They are enjoying this lead today, but the competition (in the form of both local and international players) is catching up. First movers enjoy a runway of advantage, but the key to sustaining advantage resides in the adaptability and agility of their supply chain operations—the ability to shift at any moment in order to adopt the next strategy that will provide the next window of advantage.

Globalization and the accessibility of information broaden the forces of price elasticity and fluid markets. Real-time, "anywhere" communications will increase competition and open markets worldwide. These new

marketplaces will revolve around dynamic product offers, predictive demographics and enhanced market intelligence, including Internet product development polls and other Net-economy innovations. Prices will become highly elastic—moving targets based on the conditions of the moment. Markets will be fluid, very flexible and personalized based on loyalty commitments.

The likely ramifications of globalization for supply chain management are:

Concentration of supply

In the new distributed manufacturing and distribution paradigm, organizations will have to become more agile in addition to remaining lean. They will have to establish greater synchronization across their own functions and across the multiple supply chain partnerships they maintain for the processes of the extended supply chain: planning, sourcing, making, delivering and returning product in a global environment.

Global terrorism and multi-front conflicts will lead companies to move away from the traditional definition of the lean model of inventory management that was widely adopted in the latter half of the 20th century. As a hedge against the risk of supply disruption, stockpiling certain key components and building strategic buffers will become the norm in some industries. The disciplines of inventory optimization and sales and operations planning will take on added significance. The increased specialization of products and services will lead to a concentration of supply among a smaller number of sources.

Production close to markets

The supply base will become increasingly interconnected and interdependent to deliver the products and services in demand. Political uncertainty will continue to put pressure on companies and add tremendous costs, especially in the area of transport. These costs may force some industries to move away from exclusive outsourcing and start producing closer to the point of consumption.

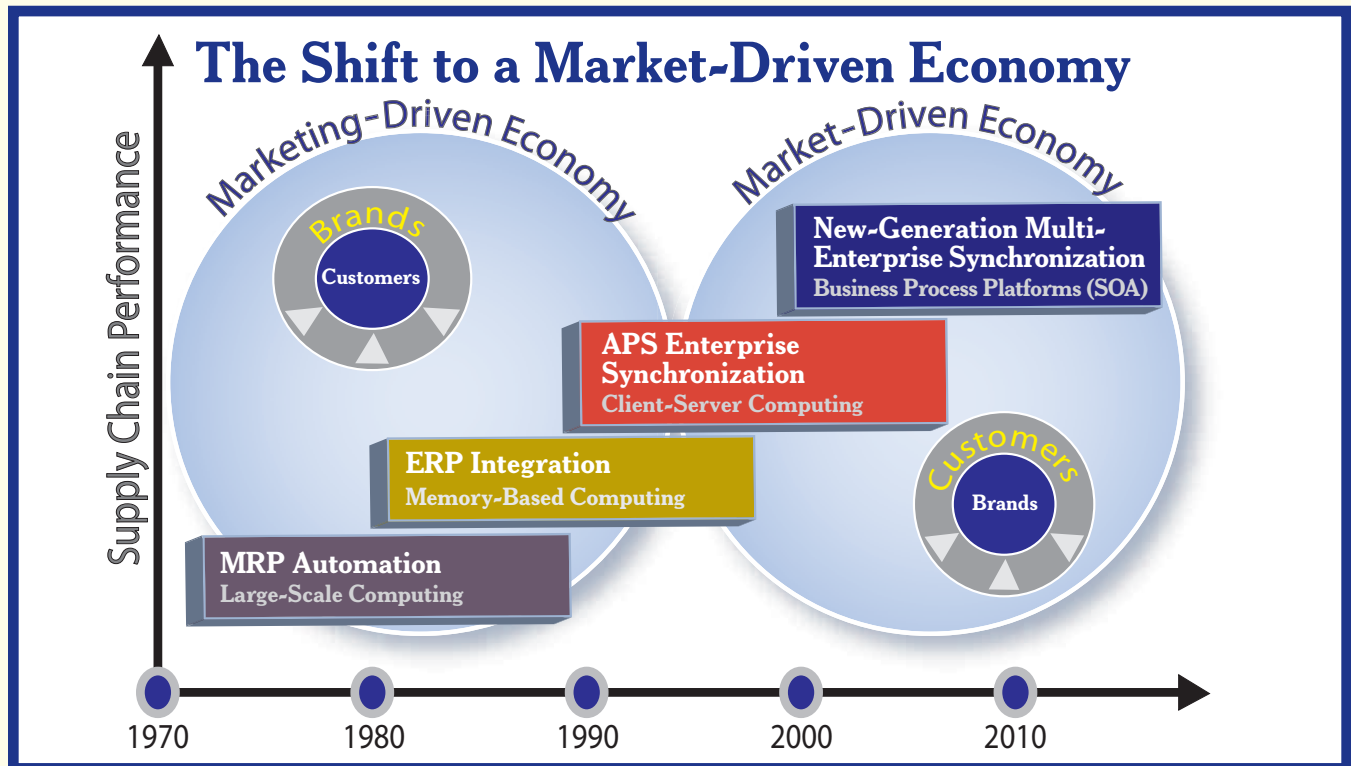
Proliferation of predictive technology

The “build anywhere for anyone” mentality increases the risks that a supply chain will need to respond to from environmental disasters. As a result, companies need the ability to manage distribution and sourcing exceptions in real time, with multiple layers of optimization capabilities.

Competition for talent

As the division of labor is further distributed across national boundaries, human capital—talent—will prove to be the most valuable resource. Companies will need new leaders and leadership strategies that enable recruitment of top talent, management of innovation, and the ability to envision and execute profitably. Recruits will have to think of themselves as global employees, since they may be asked to live outside their native country to conduct the work of the organization. An organization’s ability to recruit, develop and retain leaders will figure heavily into its competitiveness.

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MEGATREND 3: Rapid Innovation

Competitive advantage can be gained by focusing on product leadership, customer intimacy and operational excellence. Central to this focus are product innovation and supply chain collaboration. Each can create differentiated value independently. Combined, they can help companies realize the full potential of innovative products by extending the life cycle of advantage or constraining the length of time a competitor has it. The market's constant demand for smaller, faster and more feature-rich products makes maximizing differentiation critical to sustained success.

Innovation will become much more rapid as more products are tailored, customized or configured to individual tastes. As product life cycles shrink aggressively, speed to market is critical for extending the length of competitive advantage. There are many examples of companies that just a few years ago enjoyed a dominant position, but whose strategy has failed to yield continuous innovation. As a result, their competitors have taken market share through their own innovation strategies.

How companies make their innovation strategies operable will be as important as the initial spark of innovation itself.

Lasting differentiation will be supported by the systems, processes and methodologies of the entire supply chain. How companies make their innovation strategies operable will be as important as the initial spark of innovation itself. The luxury of a long development time for product introduction is no longer an option. The product development cycle itself is now tied directly to large-scale product launches (simultaneous launches in multiple markets across the world). This is necessitated by the speed of communication about new products and the consumer demand for immediacy. It places significant strain on the supply chain that must support it and has moved supply chain management into a key role in the success or failure of product launches.

As AMR Research reports, late-to-market missed demand is the top reason for product-launch failure, with 32 percent of respondents in a recent study claiming it as such. (AMR report, "Missed Market Opportunity: Delivering Innovation Remains a Business Challenge," by Michael Burkett, March 9, 2006).

Supply chain innovators work backward from the market into their value chains. Aligning operations from the point of sale enables the creation of lean, agile and demand-based supply chain networks. These networks link the variables of liability, finance and logistics to ensure that the proper balance of profitability and performance is achieved.



MEGATREND 4: Collaboration Among Multiple Enterprises

In the new paradigm, companies are no longer single enterprises. They are members of specialized teams consisting of vendors, service providers and customers—all of whose roles are symbiotic and whose responsibilities are interdependent. As companies focus on building more responsive and flexible supply chain networks, they are discovering that they do not have just a single supply chain. They have many different supply chains that are specific to product, location, customer or supplier, each with different requirements and abilities.

The globalized business model has re-engineered today's supply chain so that each member becomes a best-of-breed contributor within what Forrester Research calls an "innovation network." (*Innovation Networks: Global Progress Report 2006*, Forrester Research, Inc., June 2006).

Achieving success in this multi-enterprise environment requires companies to execute as members of a coordinated team. They must share common processes, information and metrics—a single version of the truth. This requires going beyond conventional approaches to partnership and data exchange. Companies must now tackle risk, latency and inefficiency through shared management of critical operations across multiple supply chain tiers in order to implement their innovation strategies.

As a result, today we are seeing a hybrid model of supply chain management. It pulls together the strengths of centralized planning and the strengths of decentralized execution. The principal driver in the hybrid model is connected and collaborating value networks, which enable companies to maximize their economies of scale while maintaining the flexibility to deal with day-to-day variability in supply and demand.

In the multi-enterprise supply chain, managers need complete reporting of critical activity from planning to execution. New-generation technology solutions can provide this information to all supply chain participants through business dashboards, shared metrics and performance scorecarding.

The role of advanced technology

The confluence of these megatrends requires that effective supply chain management be built on a framework that is scalable, agile and adaptable. Technology advances such as service-oriented architecture (SOA) and grid computing will emerge as the norm, reducing IT spending on hardware.

Significant enhancements in performance and scalability from a technology standpoint are required to power these capabilities. Grid computing has the potential to provide the necessary horsepower on demand to solve complex

problems involving petabytes of data. Smart software will then be able to leverage the deluge of available information and crunch through the numbers at lightning speed, using predictive engines to self-tune forecasts and inventories in alignment with company objectives for efficiency and profitability. In addition, open source will become pervasive through all types of software and become an extremely viable option for enterprises.

As radio frequency identification (RFID) becomes ubiquitous, companies will track each and every SKU every minute until it's sold to the customer and probably beyond (until it's consumed). This will create a tremendous opportunity to understand buying patterns, demand behavior, personal preferences, etc.—all from a sales/marketing perspective. Such RFID data will also help companies reduce inventories and provide better tracking and customer-service levels, in addition to many other benefits.

Advanced information platforms and systems will embed and automate more business intelligence than ever, enabling faster and “smarter” decision-making. Let's look at these two enablers more closely.

Increased business intelligence and performance analytics

In the distributed supply chains of tomorrow, success will hinge upon the two interconnected abilities to identify weaknesses and then act quickly and effectively to resolve them.

The plan-do-check-act (PDCA) cycle developed by Dr. Walter Shewhart in the 1930s will continue to be the core strategy for agile supply chain management (see article, page 21). The “check” quadrant of this cycle grows in complexity across distributed operations, yet greatly influences the success or failure of the overall process itself. The central output of the PDCA cycle is the “ramp of improvement,” a strategy of continuous improvement, where companies take on new and slightly more complex projects immediately after the completion of earlier ones. To achieve this, companies must measure the success and failure of each node in an operation.

Business intelligence and performance analytics enable organizations to obtain the information required to recognize activity patterns (in operations and in transactions) and to identify the bottlenecks within processes and correct them. This intelligence will help companies to fully leverage planning and execution data, enabling comparisons between plan and actual result. Such intelligence also will facilitate greater control over supplier, partner and financial performance across the entire supply chain.

Within the four walls of the single enterprise, business intelligence must be operational; it must help the organization understand the “why” behind the numbers. Scorecards are useful for this purpose. Rather than sifting through many reports, they allow managers to see immediately how the supply chain is performing in critical areas and at key

leverage points. In fact, performance measurement enables the entire organization to communicate strategy and targets effectively and to achieve accountability.

Outside the four walls of the single enterprise, business intelligence enhances collaboration. Some companies that have outsourced critical components of their supply chain have lost touch with critical data, but careful business intelligence strategies can rebuild these important links.

Scorecard metrics are interdependent and show how one element of the operation affects another, leading to proactive cooperation among different areas. Through the centralization of multi-enterprise business content, organizations will be positioned to make guided decisions based on accurate and up-to-date information from the entire supply chain.

Often, significant efficiency gains are sacrificed at companies because certain areas of the operation are highly efficient, while others are not. In the closed-loop systems of supply chain management, where each action has direct ramifications on both upstream and downstream activities, a single bottleneck can have significant impact on the entire value chain. Business intelligence and performance analytics solutions have two critical functions. Therefore, they must measure their respective domains and integrate with the core financial systems that feed the general ledger.

Summary

We are witnesses to an entirely new generation of technology-based global commerce in today's “perfect storm” of demographic and technological shifts:

- The individual consumer is the trigger of all supply chain activity.
- The scale of consumers and consumables has reached unprecedented proportions.
- Companies have transitioned from individual contributors to members of interoperable manufacturing, distribution and service teams and networks, with shared risks and rewards.
- Speed and adaptability continue to provide significant advantage.

What makes this moment in history unique is the perfect match between the primary force of economic change—the scale and influence of the individual consumer and the abundance of consumables available—and the ability of information technologies to manage and synchronize the complexities of global manufacturing and distribution networks. The ability to quickly and efficiently align and control these distributed supply chain networks will provide the horsepower for the global economic engine.

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