

ENABLING A DEMAND-DRIVEN SUPPLY CHAIN Taking Forecasting and Demand Management to the Next Level

“Today’s leaders of demand-driven supply networks are creating value networks that take a more global view of risk and opportunity, integrating multi-enterprise business processes across the three major spheres of activity: product innovation, demand management and supply management.”

—Stephen Hochman,
Research Director and
Mark Hillman, Research Director
AMR Research
*Global Logistics and Supply
Chain Strategies,
January 2007 issue*

THE DEMAND-DRIVEN WORLD

Historic changes are radically altering the competitive landscape for all manufacturers. As Thomas Friedman describes in *The World Is Flat*, “if you want to grow and flourish in a flat world, you better learn how to change and align yourself with it.” A wide range of factors are fundamentally changing supply chain management, and the result is a new basis of competition.

Today, the customer is king. Many electronic products are driven more by consumer than commercial purchases, which is making them susceptible to the rapidly changing preferences and short lived trends of the market. Walk into a consumer electronics store and look at RIM’s BlackBerry or Apple’s iPod. Color, form factor, and styling are more important to many consumers than the features and functions. And, consumers expect “what they want, when they want it,” placing mounting hurdles to achieving and maintaining brand loyalty. If a consumer is ready to buy and a brand owner’s product is not on the shelf, they will buy something else, increasing the pressure for demand planning and management that enables companies to unfailingly meet these aggressive market requirements.

Of course, commercial products are not immune to these same trends. Expectations for customization, last-minute changes, aggressive pricing, and perfect order fulfillment are increasingly the norm among individuals purchasing for business needs. And the pressures faced get passed on to suppliers, creating a vicious cycle that feeds on itself to further exacerbate the consequence of these trends.

BUSINESS IMPLICATIONS AND CHALLENGES

Velocity-based competition, shortened product lifecycles, increased demand variability, globalization and global sourcing, leaner supply chains, more mass customization, cost volatility, and competitive pressures have altered the supply chain management requirements in fundamental ways, causing organizations to rethink how they operate or risk being left behind.

Better demand response and new strategies and tools for effectively responding to change have quickly become imperative for today’s manufacturer. While planning remains a core part of any business, the faster pace of change not only in demand but also supply and product, multiplies the problems that planning can’t prevent. The financial impact to a company unable to respond to change can be crippling. Poor response can affect both the top line (e.g., inability to win new business, loss of customers to competitors) and bottom line (e.g., negative impact on margins, write-off of excess and obsolete inventories) of a company. Short of a strategic solution to responding to change, many companies have institutionalized costly “just-in-case” measures such as buffer inventories, expediting, and overtime in an attempt to compete.

As companies establish a more global footprint, the execution challenges to meeting changing demand escalate rapidly. Understanding and anticipating consumer behavior is no longer a local issue, but is now global. And while the flat world ushers in a new era of global competition that drives rapid innovation and pricing pressure, demand

“69 percent of brand owners say they now have less control over at least five key supply chain processes, including order promising, analyzing and managing risk, inventory liability, and forecast sharing.”

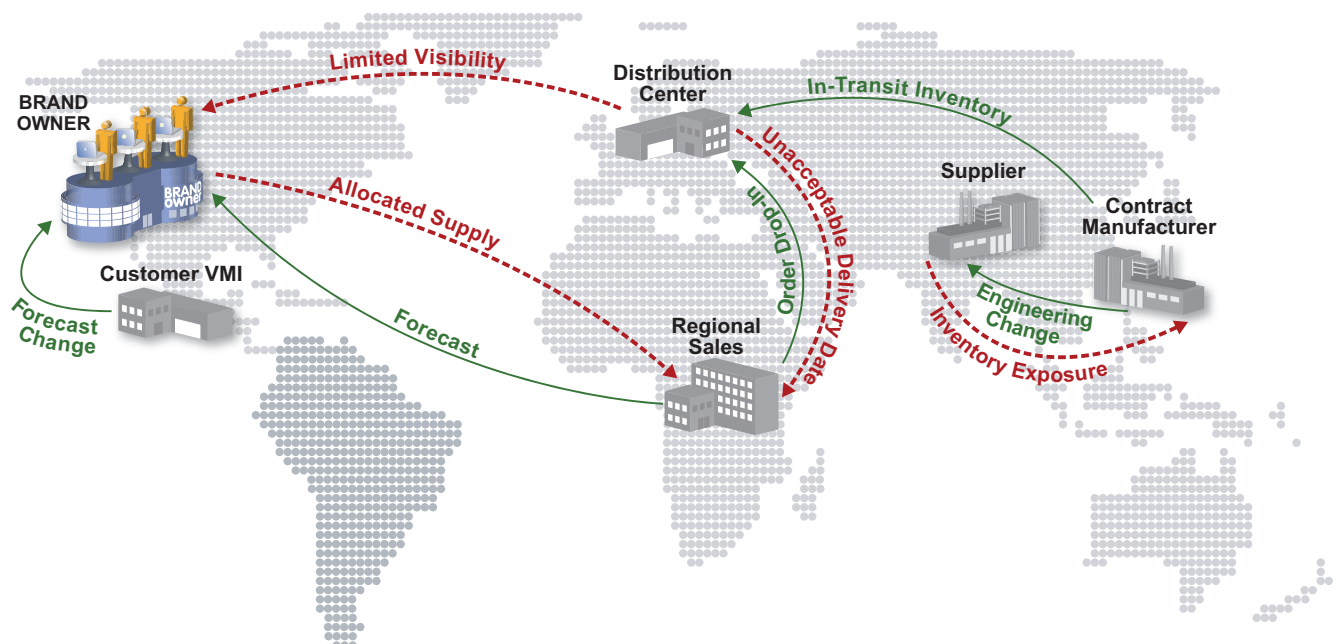
Source: AMR Research, 2004

sensing and response become critical to the efficient operations of a supply network—yet are challenged by geographic dispersion.

Likewise, despite all the intended benefits of outsourcing manufacturing operations, brand owners have found themselves significantly challenged by the lack of supply network visibility and the inability to respond to constant changes. This results from the fact that most essential supply chain information now resides with third parties.

Brand owners have become “virtual companies” with global supply networks comprising contract manufacturers (including work-in-progress, raw materials, providing a finished goods buffer, and consigned materials), suppliers (raw materials), third-party logistics providers (maintaining a finished goods buffer and providing efficient logistics) and, ultimately, the customer. Brand owners remain directly accountable for customer satisfaction, order management and fulfillment, delivery performance, their own financial results, and regulatory compliance, but are increasingly vulnerable to mishaps in meeting customer and shareholder expectations because they no longer have direct control over manufacturing and supply chain operations. As a result, proactive supply chain risk management is required to effectively respond to unexpected changes as they occur. Empowering people to respond rapidly to constant supply network changes will deliver superior operations performance.

It’s clear that manufacturers need to make fundamental changes in the way they think about their supply chains (now supply networks). To effectively manage the volatility in demand, companies need to become more demand-driven and adopt new demand management strategies and solutions. AMR Research has defined a demand-driven supply network (DDSN) as “a system of technologies and processes that senses and reacts to real-time demand across a network of customers, suppliers, and employees.”



In the 21st-century, the 20th-century supply chain suffers from:

- Bullwhip effect—caused by increasing demand uncertainty
- Linear optimization techniques—fail to account for variability across a network of flexible nodes
- No support for innovation and new product introductions—assumes new products go through the same chain as existing ones, resulting in a 75 percent failure rate

Figure 1:
The 20th-Century Supply Chain



Source: AMR Research, 2004

THE 21ST CENTURY SUPPLY CHAIN

In *DDSN: 21st-Century Supply on Demand*, AMR defines the 21st-century supply chain. Unlike the left-to-right linear chain based on hard assets, DDSN looks more like a self-renewing interaction between three strategic business domains: demand, supply, and product. Visibility and freedom to act in all three domains at once defines the demand-driven business of the 21st century.

In *Regaining Control & Managing Risk: The Electronics Outsourced Model Evolves*, Industry Directions outlines various trends relevant to this shift, including:

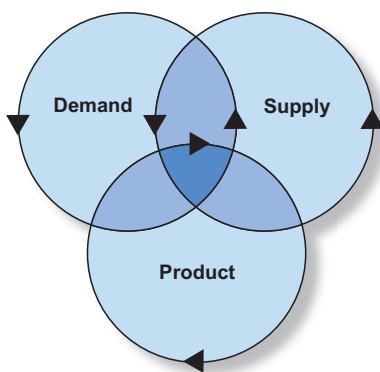
- **Supply chains extend far beyond the core enterprise.** To survive in today's highly outsourced environment, companies must follow an "outsourced competency model" in which they focus on business functions that truly give them competitive advantage and offload the rest as much as possible. As a result, enterprises have evolved into "business ecosystems" comprising myriad specialized trading partners working towards sets of common goals. The success or failure of this network of highly interdependent companies relies on how effectively trading partners, suppliers, and others up and down the supply chain work together.
- **Traditional SCM tools are not very effective in the new environment.** Companies frequently struggle to effectively manage their supply chain relationships, particularly those with non-strategic customers and suppliers (partly since most resources are focused on first-tier, strategic trading partners and customers). Difficulties in creating and sharing scorecards, managing to the contract, and agreeing on results are common.

Many companies say that increased outsourcing has resulted in a loss of control over a wide range of key inbound and outbound supply processes such as inventory liability, warranty and returns reconciliation, analyzing and managing risk with customers, order management and fulfillment, sharing forecasts/order changes, and more. The most commonly used collaborative tools include email, EDI, fax, phone, and face-to-face meetings, yet none of these have proven effective in helping companies to gain visibility and respond to change across complex supply chain ecosystems.

- **Visibility into demand signals is more important, yet also harder to obtain.** Forecasting has long been an SCM challenge, and despite the emphasis on enhancing it after the inventory crisis of 2001, improvements are still needed to drive more effective demand response. Research shows that accurate forecasting remains problematic for the electronics industry, particularly for companies that depend on outsource forecasts to drive production and inventory management planning and activities. As the authors note, "most information flows upstream and downstream in a cascading fashion, one element, department, or tier at a time. This cascading model all but ensures partners will make decisions based on outdated information and different versions of 'the truth'." The results of this are dire: "delays and ineffectiveness at best; wrong decisions, lost opportunity, and product or market failure at worst."

In the 20th century, most manufacturers deployed enterprise resource planning (ERP) systems designed to support a push-driven, build-to-order supply chain and help the business run like clockwork. In addition, supply chain planning (SCP) applications were built in a manner consistent with the way these supply chains were organized—i.e., as batch, sequential planning systems designed to run cycles in days and weeks, not minutes and hours. The very strength of SCP systems and their design approach

Figure 2:
*DDSN—The 21st-Century
 Supply Chain*



Source: AMR Research, 2004

towards planning to run the business like clockwork resulted in some tradeoffs. Their batch, sequential process is inherently difficult to change. And, in accordance with the internal nature of manufacturing operations and business needs at that time, these systems lack both visibility to external information and broad collaboration capabilities.

There comes a point when focusing on building a “better plan” is no longer the best approach to improving performance. For example, the military is highly regarded for its planning processes, including precise training, fuel and weapons planning, intelligence gathering and briefings, and similar activities before any mission. Yet the military has also invested in a strategic approach to both monitoring and responding, in the form of heads-up displays for pilots to give them real-time information and the ability to rapidly course correct when things don’t go according to plan. The military practices excellence in planning, monitoring, and response.

Brand owner visibility plays a crucial role as well—yet a variety of trends make gaining clear supply chain visibility more difficult now than ever before. For example, the vast majority of outsourcers still manage critical components either fully or jointly with contract manufacturers, and more processes are being outsourced outside the enterprise. This diminishes companies’ control over these processes, reduces visibility into critical operations, and makes the supply network less responsive to volatility. Meanwhile, few outsourcers believe they are doing an adequate job of forecasting, and a significant portion of companies don’t even know whether they’ve lost control over processes or not. All this is occurring at a time when the need to comply with Sarbanes-Oxley and changing environmental regulations—along with the need to respond quickly and efficiently to daily shifts in supply, demand, capacity, and product—make better visibility imperative.

In this environment, companies would benefit from utilizing collaborative technology that lets them not only anticipate and respond to events as they occur, but also share a synchronized view of information they must act upon.

ENABLING DDSN: TECHNOLOGY CONSIDERATIONS

Responding rapidly to change in today’s complex, multi-enterprise supply networks requires the organization to quickly make tradeoffs and compromises to resolve problems. The best people to spot and act on these issues in a timely fashion are the ones directly involved and intimately familiar with the situation at hand. As such, the response process, given the intrinsic nature of its function, must be very decentralized.

Dealing with a last-minute order change or drop-in, an unexpected hiccup in supply availability, or the need to manage engineering revisions in the midst of rapidly shifting demand requires human intervention. Key decision-makers throughout the supply chain network must have ready access to both the information and tools to quickly understand the impact of these changes and determine the right course of action—one that will proactively drive Key Performance Indicators (KPIs) to meet the businesses objectives. Too many companies have failed to strategically address this critical challenge.

A demand-driven supply network requires the proper use of appropriate technology to be successful, but as AMR Research clearly states, technology alone is insufficient. A combination of demand management tools and technologies must be put in the

hands of the right people. To optimize the response to change, users throughout the organization and supply chain need tools that provide three key capabilities: 1) global visibility to actionable data, 2) the ability to rapidly and collaboratively assess many “what-if” alternatives, and 3) a comprehensive scoring mechanism that accurately predicts the impact of proposed responses and weighs alternatives against company goals and customer requirements so the best option can be implemented.

Global Visibility

Global access to current, live data from multiple, disparate ERP, SCP, and legacy systems across internal and external supply chains combined with proactive alerting allows action teams to accurately align all supply and demand considerations based on exceptions. The ability to instantly and continuously capture new changes and agreements as they are made gives all participants a single view of the truth, empowering individuals across the organization to make intelligent, reality-based decisions and respond at the moment.

Collaborative Assessment of “What-If” Multiple Alternatives

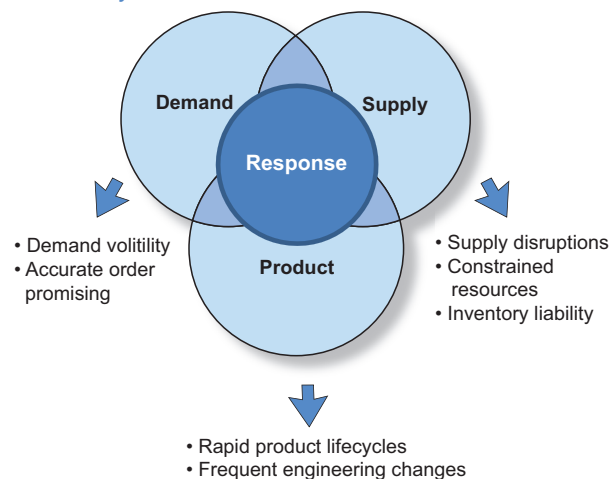
A web-based client interface that enables key players and suppliers both inside and outside the enterprise to rapidly propose, detail, and share potential results of myriad action alternatives facilitates the true collaboration crucial to identifying the best options.

Comprehensive Scoring Mechanism

By enabling groups to immediately evaluate multiple scenarios in terms of how well they meet specific metrics and objectives, the scoring mechanism ensures that decisions are aligned with corporate goals and profit targets, rather than being based on personal opinions or guesswork—allowing companies to understand the impact of their choices before they make them.

There are solutions today that integrate these capabilities to empower front-line decision-makers throughout a supply network with the information and tools to rapidly plan, monitor and respond to changes in demand, supply, and product. With such a solution, brand owners are able to take forecasting and demand management to the next level — allowing them to effectively align supply and demand, respond to demand changes, and proactively manage inventory and supply exposure as well as material costs across their supply networks.

Figure 3:
*DDSN—The 21st-Century
Supply Chain*





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