

RISE OF THE INTELLIGENT SUPPLY CHAIN



New sales channels powered by the Internet, build-to-order scenarios, increased competition and more demanding customers are changing the face of manufacturing. To sync up with these changes, business processes are changing, too. Supply chains also are evolving—first they became partnerships and now they are evolving into “value chains” that truly share and integrate information with manufacturing. Manufacturers are being challenged to compete and succeed as entrepreneurs, information technology innovators and as anticipators of what success will look like in the future. It is clear that collaboration is crucial.

Manufacturers are using effective solutions to reduce costs and decrease inventory. Today, however, the bar is being raised higher. Manufacturers are redefining what manufacturing is in order to improve performance in every aspect of their business, add value to their supply chains and remain competitive. Several of the trends manufacturers are responding to include:

Increased outsourcing—Business is becoming more complex and as the pressure mounts to compete, outsourcing is becoming more prevalent. Manufacturers today may outsource design, production, or assembly to third parties as they seek to expand their reach to their supply chain. By disintermediating their supply chains, manufacturers are exploiting the competitive advantages of their supply chain—no matter where those strengths lie.

Greater product variation—Another response to increased competition is the trend toward customized manufacturing. Engineer-to-order solutions, product configurators, and menu-driven Web sites assist manufacturers in quickly delivering products and addressing specific needs.

Shorter product lifecycles—Responding to increased demand also means that product lifecycles are under closer scrutiny and are shrinking faster than ever. Product either sells quickly or it is labeled as slow moving and is removed from the market, causing high costs of obsolescence. Higher volumes of new product introductions that aren't supported by accurate planning and forecasting can also yield higher return rates and discounting requirements.

Channel expansion—Manufacturers also are being presented with the opportunity to establish new sales channels, including everything from business-to-business (B2B), e-business, to setting up new retail organizations. As the Internet becomes more broadly adopted, manufacturers can only imagine the future direction of channel development.

Demanding customers—With competition now attempting to annex new markets and address newfound customer needs, manufacturers are finding that their customers are far less forgiving, not so loyal, and more likely to bring their business elsewhere. Technology enablers such as the Internet have certainly contributed to this.

Meeting new challenges

Pressure is building as manufacturers alter their business plans and processes and view their supply chains differently. In addition, supply chains are becoming more complex, less visible and hence, less manageable. Add to that an increase in customer expectations, ongoing demand spikes, an increase in product variation coupled with shorter product lifecycles—and it is clear that tracking profitability is more difficult than ever. The drive to collect and analyze supply chain performance will only increase as manufacturers reshape their businesses and use Internet-powered channels, for example, to produce exponential amounts of data about supply chain partners and transactions.

However, given the current state of technology, manufacturers are unfortunately ill equipped to meet these supply chain challenges. Manufacturers need to have the capability to collaborate with their supply chain, and they must have the analytics needed to assist them in being as competitive as possible. Boston-based Gartner, an industry analyst firm, estimates that less than one percent of companies today actually are capable of monitoring and measuring online supplier performance. A study conducted by the University of Texas found that only 11 percent of 1,000 companies studied have any form of online transactional and information-sharing capabilities with their suppliers.

Collaboration adds value

According to Gartner, collaboration ultimately increases value to customers and “to provide profitable commitments, each enterprise in the demand chain must increase the level of information it share with the others.” They further state that “a number of business and technology trends identify collaboration as a key success factor for enterprises in the new economy.”

As collaborative business practices emerge, manufacturers must adopt a collaborative business model to anticipate change that occurs upstream and downstream. Given the collaborative nature of the supply chains that are arising, sharing and

integrating information is no longer optional. To add value through collaboration, manufacturers must:

- Adopt common metrics.
- Improve exception management
- Promote communication and build relationships
- Establish collaborative business processes
- Information supply chain

Collaboration and information integration—building an information supply chain—is the answer to relieving the pressure on manufacturers to compete and add value. According to a Forrester report, Apps for Dynamic Collaboration, 72 percent of firms say supplier collaboration “is critical to their product development success.” According to Forrester, proprietary interfaces that limit interoperability, rigid architectures and weak external processes are culprits that “cramp collaboration.”

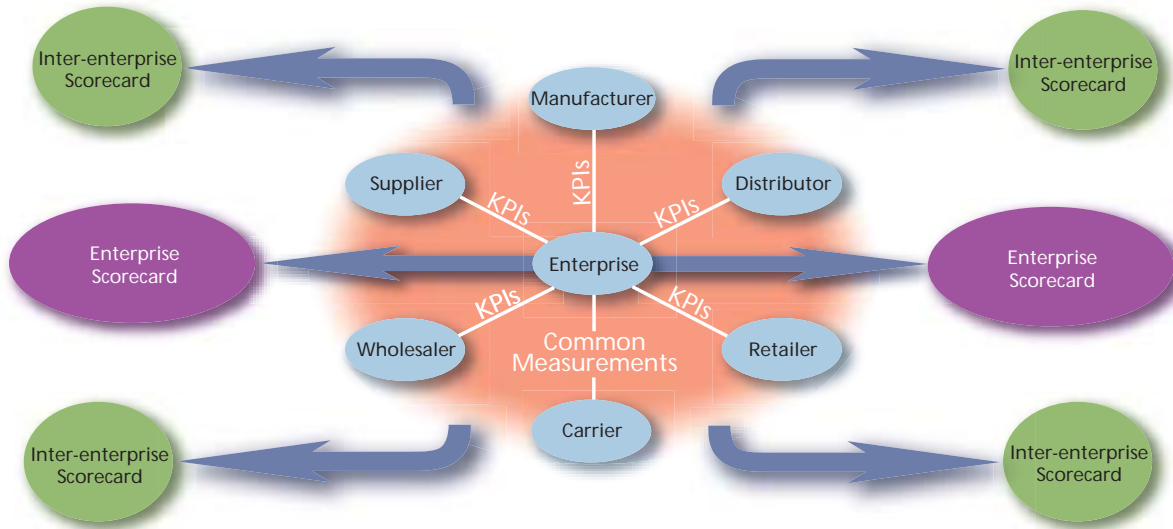
Sharing information and collaborating ensures that manufacturers are able to make use of supply chain partner information to help fulfill demand more quickly within order cycle times. In addition, manufacturers can become more nimble, which will result in reduced lead times because supply chains are more clearly visible. Inventory will be reduced, stockouts will be eliminated and products that are not selling can be removed.

An effective information supply chain requires that manufacturers:

- Establish metrics —Use mutually agreed-upon metrics to evaluate progress and measure the supply chain's contributions.
- Manage exceptions —Create a vehicle for managing exceptions related to demand and inventory.
- Communicate —Inform supply chain partners about time-sensitive information.
- Plan collaboratively —Perform collaborative planning with their supply chain partners.

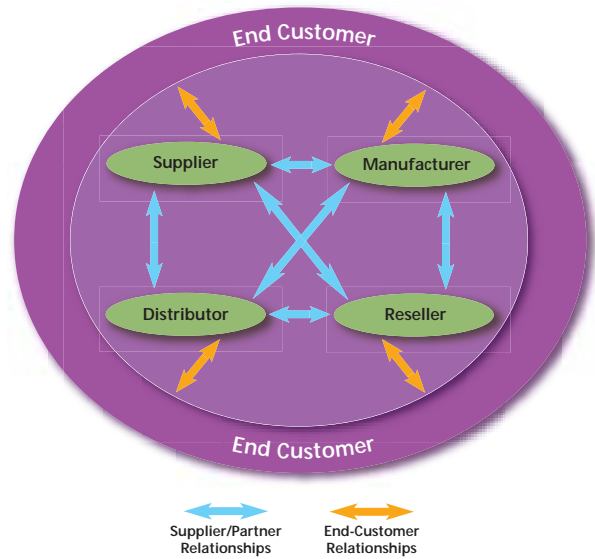
An enterprise that engages in multiple B2B trading relationships adds even more complexity. For example, the need for extended metrics is obvious, given the trading relationships shown in the diagram that follows.

You can't improve what you do not measure".



Source: Gartner

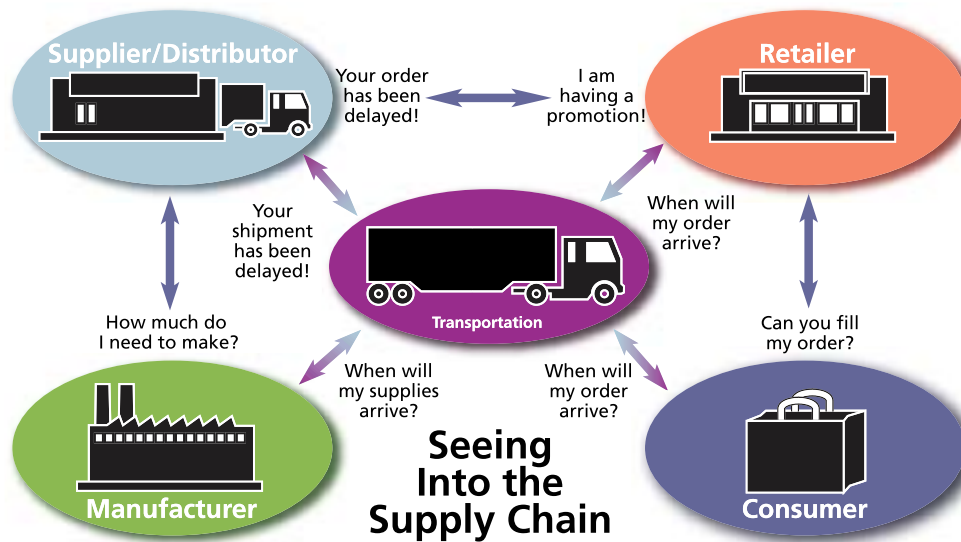
The Future: Collaborative Partner Relationships.



Source: Gartner

Achieving visibility across a supply chain means not only being able to track the performance of a supplier, but also that of your supplier's suppliers as well. Visibility of key metrics enables more agile demand planning, and production and quality issues can be addressed much more quickly. In addition, increased visibility matters to customers. According to a Gartner presentation, *Optimizing Fulfillment Through Supply Chain Execution*, "Through 2004, enterprises that provide customers and trading partners with visibility of orders, shipments and events across the extended supply chain will experience up to a 15 percent increase in profitability, because they will be able to reduce inventory while increasing customer satisfaction."

Supply Chain Inventory Visibility: Reducing Inventory and Lost Sales.



Source: Gartner

Creating a more visible supply chain requires combined metrics, greater information sharing, and the use of automated notification to support integrated decision management across the supply chain. Manufacturers need to:

- Develop internal metrics to combine internal and external information
- Isolate high return functional areas
- Use key performance indicators (KPIs) to drive process improvement
- Create supply chain metrics to extend internal metrics
- Support partners in building internal metrics.
- Benefits of information integration

Building an extended information supply chain has numerous benefits. Overall, it will reduce lead times, improve coordination of production and distribution, eliminate stockouts, minimize on-hand inventory, facilitate Collaborative Planning, Forecasting, and Replenishment (CPFR), Vendor-Managed Inventory (VMI)-type relationships, reduce working capital, obsolescence and complexity. This will lead to business benefits such as greater profits, an increase in market share, a stronger competitive position, and an enhancement in the company's value.

Industry and technology enablers

Planning is crucial. According to Gartner research, *Manufacturing Planning: Fundamentals and Indicators of Collaboration*, enterprises must "treat key suppliers with trust and commitment" or risk eroding relationships and making collaboration impossible. Planning allows analysis of the impact of collaboration up front so problems can be avoided. Measuring the impact of collaboration, according to Gartner, begins with "best practices of traditional manufacturing planning, then extending them to all members of the supply chain." The absence of trust "will erode relationships and make collaboration impossible."

Standardization also plays a key role. The more closely supply chain partners are involved in a manufacturing effort, the more important it is to standardize. Manufacturers must use standardized customer and product codes that reside in a central repository/warehouse of customer and product information. This offers seamless integration between supply chain partners.

Internet-enabled machine-to-machine communication will reduce lead times, allow for a decrease in inventory, and reduce administrative costs relating to invoice disputes and to minimize the re-keying of data.

The use of event-driven, Internet-based communication will enable the triggering of messages to partners based on exceptions as they occur. In addition, standardization and a common repository will allow pricing, promotion and product information discrepancies to be reduced dramatically. Promotional dollars will be spent more effectively because manufacturers will be able to leverage promotional dollars and incentives to increase demand, instead of passing the savings on to the customer.

As analytics tools are fully implemented and exploited, manufacturers will be able to shift more easily to view their business from the supply chain side. Manufacturers can then consider vendor-managed inventory, CPFR, and shift relationships within the supply chain to more effectively assign supply chain tasks—even assigning tasks to supply chain partners that used to be performed by the manufacturer. This will allow manufacturers to decrease the cost structure of their businesses to enable quick reactions to unanticipated demands.

Supply chain planning/collaboration would leverage supply chain metrics into models for predicting end-user demand. It would also help manufacturers collaborate on and plan for demand forecasts with supply chain partners. In addition, it will help with monitoring and adjusting plans with partners on an ongoing basis.

The formal return on investment for supply chain analytics is significant. Gartner calculates the potential return on investment for supply chain analytics to be about 40 percent after five years. However, supply chain analytics can deliver value in a more profound way—by creating validation for the collaborative information supply chain relationships on which the manufacturer is building a profitable business. At the same time, all parties involved build relationships and trust that are at the heart of supply chain collaboration. According to Gartner research on manufacturing planning, “Trust is the greatest inhibitor to (and enabler of) collaboration—it is essential for overall success.”

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