



T O M O R R O W ' S T R A D I N G M A R K E T S T A R T S T O D A Y

LEAP! from Saltare.com:

Empowering Customer-Driven Business

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EXECUTIVE SUMMARY

Imagine you are in the market to buy a computer. For the sake of convenience, you have decided to purchase your computer directly through a manufacturer's Web site, rather than by a toll-free number or at a retail store. You have narrowed your search to two online vendors: Acme PCs and White Star Computers. Acme's Web site enables you to customize a PC to your specific preferences and requirements. White Star's Web site offers only preconfigured choices. Although none of the White Star computers is designed precisely how you would like it to be, the most comparable model costs slightly less than the Acme PC that suits your exact requirements. Which do you choose?

History has shown that when we are given the opportunity to buy the exact products we desire, we will consistently choose them over preconfigured products, even if there is a slight price difference. Today, more than ever, the opportunity exists to gain market share by doing just that—selling your customers exactly what they want. Attempting to cut costs by lengthening the life cycles of their products, many manufacturers have modularized their products into small components that lend themselves to customization. Add to that the availability of Web-based, self-service selling and order-entry systems, and the foundation has been laid for customers to configure and buy customized products. As a result, purchasing trends have fundamentally begun to shift because customers can now make more informed, more personalized decisions and are therefore seeking manufacturers that can provide precisely what they want. This behavior is compelling manufacturers to migrate from a business model based on “mass production”—in which standard, preconfigured products are built for inventory—to one based on “mass customization,” in which products are built to customer requirements.

Whereas mass production is driven by forecast and inventory, mass customization is customer-driven production. It demands that manufacturers and suppliers be flexible enough to provide customers what they want, when they want it, and how they want it.

In addition to enabling enterprises to capture more market share and build customer loyalty, customer-driven business offers tremendous financial rewards. These include lowered inventory, reduced overhead, increased sales, and decreased cost of goods. **In order to compete in the future, therefore, manufacturers *must* migrate toward a customer-driven business model—and they must begin the migration now, because evolving to the new model can take time. If they do not, they will be**

crushed by competitors that are better able to assess and respond to growing customer demand.

For manufacturing companies to successfully transition to customer-driven business, they must streamline the collaboration between themselves and their suppliers by creating an open market where they can solve supply problems in real-time. This trading environment—also known as an *agile trading market*—must be built on a “superstructure” that includes rapid communications, the intelligence to direct relevant data to the people who can take action, and the support of processes and methodologies that can automatically handle routine decisions. By directing traffic and handling routine matters in an intelligent way, the superstructure screens out the noise so people can focus on quickly making the important decisions.

In addition, this superstructure must:

- Reduce time-to-market for product development and enhancement
- Directly link order-entry and manufacturing planning systems to speed the availability of demand requirements
- Intelligently and selectively communicate with a manufacturer's strategic trading partners
- Respond immediately to orders, changes in order configuration, and level of demand
- Provide flexibility and reliability in a manufacturer's components supply
- Calculate immediate optimal solutions to specific trading market scenarios
- Make information actionable to decision-makers on a local level

LEAP![™] from Saltare.com is a software system that provides this superstructure for enabling successful mass customization. Because of its cost-efficient Web-based interface, LEAP! can be accessed from anywhere via a standard

Web browser. It also provides real-time communication between trading partners on a business-to-anyone (B2x) basis, and is intuitive to use. Intelligent LEAP! agents enable the optimization of manufacturing and supply operations throughout the trading market. Manufacturers and their suppliers can therefore respond quickly to the dynamics of customer demand and, most importantly, the exception conditions, without being distracted away from the routine processes. And finally, LEAP! simplifies the complexity of a many-to-many B2x environment by enabling a manufacturer to make real-time decisions that optimize marginal costs.

This paper describes the current market environment and the forces driving manufacturers toward mass customization. In addition, it discusses the challenges manufacturers face in implementing a customer-driven business model—primarily, that of replacing the traditional supply chain with a Web-centric trading market. Finally, the paper shows how LEAP! features can be leveraged to provide manufacturers a competitive advantage in the future.

MARKET OVERVIEW: THE ARRIVAL OF MASS CUSTOMIZATION

Dell[®] Computer Corporation is an example of the success made possible by adopting a business strategy based on mass customization, or customer-driven production. In 1993, Dell was ranked for the first time in the top five PC manufacturers worldwide. By 1997, Dell first outranked the long-time number one PC manufacturer, Compaq[®], in U.S. sales. In August 1999, Dell took the number one position in the United Kingdom as well. The company attributes its success to the same principle on which it was founded 15 years ago: Sell customers exactly what they want.

According to the December 1, 1999 issue of *The Wall Street Journal*, Dell is generating a 160 percent return on capital by allowing customers to configure their own computers online. Dell then builds and delivers these computers within as little as five days.

Dell's impact on Compaq's revenue has been substantial. In July 1999, Compaq posted a dramatic \$184 million loss for the third quarter and announced plans to cut its global workforce of 70,000 people by 6,000 to 8,000 employees. The job cuts were part of Compaq's reaction to Dell's success in build-to-order operations. Rather than evolving into a customer-driven business model over time, as Dell did, Compaq was forced to make dramatic corrections quickly to offer customized products. This response resulted in more financial losses and organizational turmoil.

THE AFTERMATH OF THE INEFFICIENT SUPPLY CHAIN

The examples of Dell and Compaq demonstrate the impact of mass customization—on both the company that implements the strategy and the competitor that gets left behind. Compaq's inefficiencies in the supply chain cost it more than just money—the company lost customer loyalty because it could not respond to customer demands, and it lost market confidence due to its drastic cutbacks.

PCs, however, are not the only products being catapulted toward customer-driven business. Almost every industry will be affected. *The Wall Street Journal* noted that automobile manufacturers are interested in taking advantage of a make-to-order operational model. According to a recent study by the National Institute of Standards and Technology (NIST), "The inability to freely exchange manufacturing information within the U.S. automotive industry supply chain costs at least \$1 billion annually."¹ The aerospace industry, too, is finding supply chain inefficiencies

costly. Even in 1997, *InformationWeek* described airplane manufacturer McDonnell Douglas' struggle to streamline supply chain management and escape the risks of delays and poor communication. The article notes that "a one-week delay in the arrival of just one of an airplane's 100,000 parts can ripple through a schedule and cost a manufacturer hundreds of idle labor-hours, force a vast restructuring of work schedules, and require the renegotiation of contracts."²

The same effects can take their toll on countless other manufactured products, from Barbie Dolls to CDs to household appliances. Even Campbell's Soup was forced to react to an unforecasted drop in demand for condensed soup by instituting a more integrated approach to its trading market. The company's reaction, however, was not fast enough to preclude the embarrassment of missing quarterly earnings expectations for the second quarter of 1998.

THE CHALLENGE

So how is it that Dell has turned mass customization into a recipe for market leadership? And why is it that Compaq, previously the frontrunner in PC sales, could not maintain its position? The answer is obvious today: Dell gives its customers what they want every time, while Compaq remained loyal to its mass production model too long.

Dell's ability to accommodate a customer-driven business strategy is an example of attentiveness to what Deloitte & Touche believes is one of the essential ingredients for manufacturing success in the next century:

a complete integration of the components of the supply chain.³ This integration, leveraging the Internet, is inspiring an evolution from the linear, hierarchical communications between trading partners to an interactive "global nervous system," or "supply web." By networking manufacturers, customers, and suppliers, a dynamic flow of critical information ensues, giving manufacturers and suppliers clear-cut visibility into business processes and the ability to respond in real-time to changes in supply and demand.

¹ *Interoperability Cost Analysis of the U.S. Automotive Supply Chain*, National Institute of Standards and Technology, March 1999.

² *InformationWeek*, August 1997.

³ *Vision in Manufacturing 1998*, Deloitte & Touche.

As the engineers at Saltare.com designed a system to support customer-driven business, it was clear that the overriding need was for a means of rapidly communicating requirements to everyone involved in the manufacturing process—and, at the same time, making that information actionable. Customer-driven business depends not only on the manufacturer knowing demand, plant capacity, and material needs on a real-time basis, but also on the ability to make changes in the plan as demand and sources of supply change. The system, therefore, needs to include suppliers and other companies that affect the delivery of products to customers. Because of the need for quick decisions, it must support local, rather than centralized, decision-making.

In a mass customization environment, traditional forecasting and linear supply chain interactions are replaced by an open trading market. The manufacturer focuses on supporting key strategic suppliers—those that are essential to the customer-driven business effort. Brokers that work with several suppliers may be members of the trading market, deciding which suppliers can best meet a manufacturer’s needs. All members of the trading market use Saltare.com LEAP! software on the Web to make transactions and share information.

LEAP! filters the information so that participants in the trading market only receive the information they need. By eliminating extraneous information, each participant is as efficient as possible. Exception conditions requiring immediate action are highlighted and solved by LEAP!. Suppliers gain visibility that they never had before. For instance, suppliers have access to the manufacturer’s demand information and see in real-time what customers are requesting. This visibility helps them respond quicker to changes in demand. As a result, LEAP! presents a win-win situation not only to manufacturers, but also to suppliers—and ultimately, to customers.

Because decisions must be made quickly, Saltare.com also decided to develop a number of automated intelligent agents that would make repetitive decisions automatically, freeing people to focus on exception conditions. Algorithms were also developed to assist with re-optimizing

manufacturing plans based on marginal costs. These agents and algorithms give manufacturers and their trading partners the tools to make the right decisions from the information they see, whether by making order adjustments, trading excess supply, or accepting bids for parts in short supply.

To illustrate the use of a LEAP! agent, suppose a supplier cannot meet a manufacturer’s demand for a certain component. The supplier notes its dilemma and communicates its “de-commitment,” or offers a different commitment timeframe for meeting increased quantity requirements, using LEAP!. A LEAP! software agent then assesses the situation and, depending on the business process established, might notify a broker in the trading market and try to find alternative sources for the part. If the broker overcomes the supply bottleneck, the manufacturer continues to receive the materials needed without actually having to assign people to address the problem.

OVERVIEW OF LEAP!

Leveraging the ubiquity of the Internet, LEAP! from Saltare.com enables manufacturers to leverage the mass customization model to gain a competitive advantage in their markets. By providing a common communication infrastructure along with intelligent agents and optimization algorithms, LEAP! offers a simple means of transforming static supply chains into dynamic, Web-centric trading markets and other trading communities that are closely integrated with the manufacturer’s systems.

The key features of LEAP! are:

Visibility. LEAP! provides a communication platform for everyone involved in the customer-driven business process to access the information they need for decision-making. Each trading partner sees information tailored to that individual’s job and can have end-to-end visibility into demand levels, supply sources, production capacities, inventory quantities, distribution capabilities, and marginal costs, and can make

changes in response to any virtual planning process. To enable this level of visibility, LEAP! interfaces to the manufacturer's existing ERP, advanced planning, scheduling, and logistics packages. And, because a Web browser is used to access LEAP!, the software is accessible anytime, anywhere. In addition, LEAP!'s Java™-based architecture gives it a “run anywhere” advantage; in other words, anything that can run Java (including handheld devices) can connect to LEAP!.

Ease of use. LEAP! was designed specifically to offer a simple, intuitive, visual user interface that any trading partner can operate via a Web browser on any Java-compatible device. As a result, suppliers and other trading partners can use LEAP! without requiring special training or complicated deployment initiatives.

Automation. Leveraging unique intelligent agents, LEAP! enables manufacturing companies to automate repetitive processes, such as purchasing. Therefore, manufacturers can manage exception conditions in a more streamlined manner, and save time and effort by only intervening in situations where their involvement is specifically required.

Intelligence. Making adjustments to a plan might be easy. Making the right adjustments is tricky. Through an innovative set of optimization algorithms driven by marginal costs, LEAP! recommends the best solution to each member of the trading market. LEAP! is unique because it decentralizes the decision-making process throughout the trading market. As a result, companies using LEAP! can bypass the lengthy, hierarchical, and often inaccurate decision-making process demanded by competing centralized supply chain systems. Much like a walkie-talkie, a centralized system can only provide information to one member of the trading market at a time. This can lead to cascading serial decisions, where a previous decision may have to be revised as subsequent decisions are made by trading partners. Because LEAP!'s innovative architecture enables simultaneous many-to-many communications on a distributed basis, an optimum solution can be created without the bullwhip effect of centralized systems. This enables companies to respond faster to the dynamics of demand and minimize the interactions of each member of the trading market.

Business process optimization ensures demand is met as quickly and efficiently as possible, so a

company can maximize profitability, foster good supplier relationships and customer loyalty, and avoid the risks of a bad decision. As an example of how powerful optimization can be, consider a sales manager who has been given historical data regarding the total revenue obtained in each geographical region, shown in the figure below.

		SALES PERSON					
		1	2	3	4	5	6
SALES REGION	1	1	2	6	10	17	29
	2	3	4	8	11	20	30
	3	5	7	9	12	22	33
	4	13	14	15	16	23	34
	5	18	19	21	24	25	35
	6	26	27	28	31	32	36

REVENUE IN \$M PER PERSON PER REGION

The challenge is to match the right sales person with the right region in order to maximize the total revenue in all regions. Intuitively the sales manager would probably begin with sales person 6 in region 6, since the highest revenue was achieved in this combination. The solution shown by the squares follows this starting point, resulting in a total revenue of \$91 million. But a closer look at the data reveals that \$91 million is not the maximum amount of revenue that can be obtained. In fact, any other random combination can achieve higher revenues. Just one of those combinations is shown in circles in the figure above, revealing a total revenue of \$111 million—and there are many other combinations. Clearly, choosing the right solution is indeed a complex endeavor and requires sophisticated algorithms, such as the well-known Hungarian method in Operations Research literature.⁴

Real-time decision-making. By enabling decision-making to be distributed among all members of the trading market over the Internet, the rapid responsiveness required for mass customization is achieved. Business process optimization can occur quickly as market demands dictate changes. Providing LEAP! to suppliers also enables manufacturers to maximize the potential for favorable negotiations with trading

⁴ For more information on this example, please refer to *Operations Research Deterministic Models*, by Katta Murty, Prentiss Hall, 1995.

partners for adjustments to schedules, inventory levels, and operations.

Scalability. Success can come quickly with a shift to mass customization. Thanks to LEAP!'s flexible, Java-based architecture, in conjunction with the Internet's dynamic nature, manufacturers can meet increasing volume requirements by simply adding more servers as necessary. All LEAP! applications are multithreaded so servers can easily adapt to increases in traffic. In addition, LEAP! is implemented as a flexible and modular suite of distributed Java applications, so it can also scale easily to accommodate more enterprises

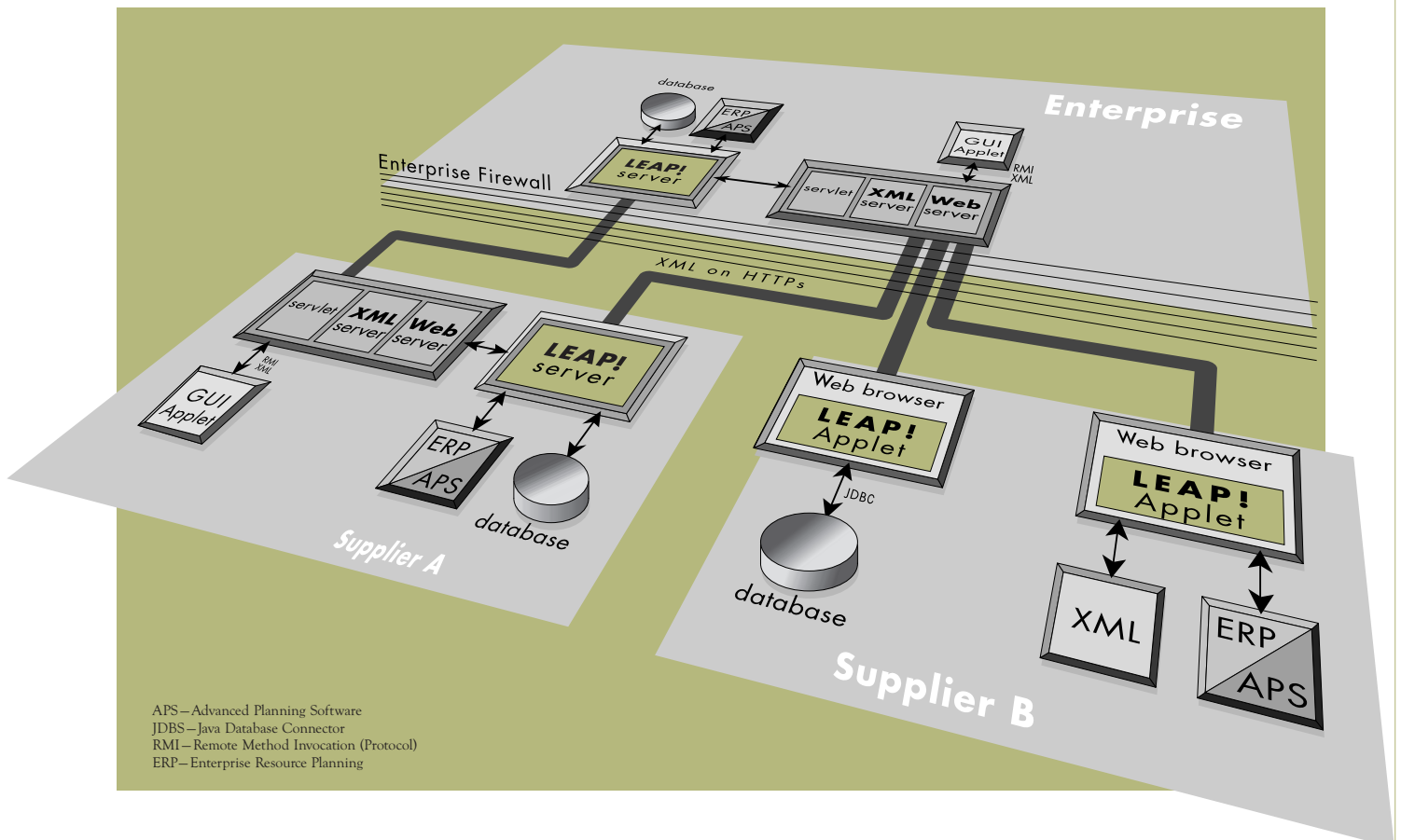
joining the trading market. Suppliers in the trading market are not required to install any new components—the client-side applets can directly connect, securely across firewalls, to the LEAP! server.

Return-on-Investment (ROI). Priced on a subscription and functionality basis and accessible through any Web browser, LEAP! can be implemented with a small IT investment. In addition, Saltare.com provides ongoing upgrades to the software as part of its service. This ensures that customers always have the latest improvements provided by Saltare.com without regard to cost.

LEAP! INTO ACTION

To illustrate these features and benefits at work, consider the Acme Company, a PC manufacturer with factories in Singapore and Australia. Acme sells PCs online that are customized to order. Supplier A provides disk drives to

both factories and Supplier B provides microprocessors. Acme, its suppliers, and its components broker all use Saltare.com's LEAP! software system to manage their business with Acme.



APS—Advanced Planning Software
 JDBS—Java Database Connector
 RMI—Remote Method Invocation (Protocol)
 ERP—Enterprise Resource Planning

Supplier A regularly ships 50 disk drives a week to each Acme factory. Due to a production delay, however, Supplier A must de-commit to its standard delivery for one week and can ship only 10 units. Using LEAP! through a Web browser, Supplier A indicates that the quantity for that week will be only 10 units. Initially, an intelligent LEAP! agent will attempt to solve this supply issue within the Acme factory. If the agent is unsuccessful, the de-commitment is immediately highlighted to the component broker, who manages Supplier A on behalf of Acme. The broker's job is to ensure that component supplies are sufficient to meet Acme's needs. The broker will find alternative sources of supply if any supplier falls short. Now that LEAP! has notified the broker of the shortfall from Supplier A, the intelligent agent advises the broker on how to adjust to the event. Since LEAP! intelligent agents are

able to monitor conditions in the open marketplace, the agent can then select the optimal supplier to best pick up the slack. Succeeding in this, there is no need for Acme to take any action. The trading market has done its job. Had the agent been unable to correct the problem, however, LEAP! would have escalated the problem to Acme by presenting a set of ranked possibilities, such as substitution or replenishment, through which ACME could take further action, and ultimately be able to meet the customer order.

This scenario demonstrates the power—and necessity—of teamwork in a trading market. Multiple sources, monitored by LEAP! software agents, enable the process to be managed on an exception basis, which is essential to meeting the needs of mass customization. Without this integrated, intelligent superstructure, it would be impossible to analyze events and make optimal decisions in a timely way.

LEAP! IMPACTS THE FUTURE OF MANUFACTURING

A customer-driven business model, facilitated by LEAP! from Saltare.com, provides a very strong advantage for manufacturers in every market. By enabling an open, dynamic trading market, LEAP! will fundamentally impact manufacturers in three key areas:

- **Manufacturing operations.** Operating with a customer-driven business model, a manufacturer has two objectives: maximizing throughput and minimizing costs. LEAP!, with its intelligent agents and real-time visibility into demand and the trading market, enables manufacturers to meet both objectives.

Consider an automobile producer, for example, that operates an assembly line capable of producing 20 cars per day. This is the rate at which costs are minimized. Under a customer-driven model, however, the manufacturer must wait until an order is received before building a customized car. Unfortunately, the manufacturer cannot afford to wait. Waiting for orders not only disrupts the smooth flow of the production line and increases costs, but it also results in delays in getting the finished car to the consumer. How, then, can the manufacturer maintain the high throughput and smooth production flow necessary to keep costs low?

To ensure a smooth production flow, many manufacturers are isolating the common components in the bill of materials. In the case of a car, those common

components might be such items as the chassis, the wheels, and the steering column—the parts that would be required in every car, regardless of customizations. The final assembly line would then install these components into the customized car as ordered. LEAP! provides real-time visibility into market demand through interfaces to existing order-entry systems so that the manufacturer and its trading partners have the maximum time to locate and procure those common components in order to maximize the production throughput, and thereby minimize costs.

In addition, LEAP! provides intelligent agents that guide the manufacturer in optimally rescheduling production to keep the flow smooth as changes in demand occur. Suppose a manufacturer anticipates that customers will request 80 automatic transmissions and 20 stick shifts per week. The production plan calls for automatic cars to be assembled first, then the stick shifts. Leveraging the real-time visibility into market demand as provided by LEAP!, however, the manufacturer quickly learns that the actual demand is for 75 automatics and 35 stick shifts. Based on this information, LEAP! intelligent agents automatically assess the production flow, and determine that it is in fact better to build the stick shift cars first because the manufacturer can procure the components necessary to build them

first and because orders already exist for those cars. The manufacturer can then reschedule production in real-time for optimal throughput and lowest cost.

- **The restricted trading market.** In a customer-driven model, manufacturers have a set of strategic suppliers that provide the components used to make customized goods and services. LEAP! gives these companies real-time visibility to demand and intelligent tools to define best trading strategies. In addition, LEAP! provides a trading market for the manufacturer and its strategic suppliers to find components or capacity that might be in short supply or in excess—or even to re-allocate capacity differently among the manufacturer’s factory sites. These capabilities enable an intelligent trading market to provide the components that will keep the manufacturer’s throughput levels high and costs low.
- **The open trading market.** In the event that no partner within the trading network is able to provide the components needed by a manufacturer, LEAP! enables the manufacturer to turn to an open marketplace to

ensure the greatest possible opportunity to keep production rates up and costs down. For example, suppose a PC manufacturer has a maximum throughput of 100 computers per day. However, the manufacturer is currently operating at 80 percent capacity due to component shortages. Leveraging intelligent agents and optimization algorithms, LEAP! can identify the components available from qualified partners in the open marketplace that will enable the manufacturer to make an additional 20 computers per day and achieve full production capacity.

Spreading its fixed costs over another 20 machines per day lowers the per-unit costs for the manufacturer. Those lowered costs, in turn, can make the PC manufacturer more competitive, potentially offering lower prices to customers. For example, the manufacturer could offer promotions and incentives to buy the 20 extra computers per day. That push could result in greater overall attention from its resellers and, ultimately, in greater market share for the manufacturer.

LEAP! IMPACTS THE FUTURE OF LOGISTICS

The dynamics of mass customization impacts not only the manufacturing process, but also the logistics process. Logistics is also a critical component fundamentally important to a manufacturer’s ability to build products to order and ship them on time. Logistics operations must, therefore, share in the same, flexible, collaborative communications made possible by an agile trading market, as well as the optimization made possible by LEAP!.

The primary problem facing logistics today is operating in a flexible environment. Logistics operators must be able to reroute shipments on-the-fly. They must have visibility into the throughput of manufacturers and their production-related trading partners. And finally, they must be able to leverage those capabilities in transit, in order to combine customer orders for maximum efficiency, speed, and cost-effectiveness.

As an example, suppose a manufacturer places a huge shipment order with a logistics company, with components of this order coming from suppliers in Australia, Japan, and Taiwan. Suddenly, due to a schedule change, all of the components must be at the manufacturer’s factory in Scotland. In order to maintain production processes

and schedules, the manufacturer must have all of these components at the same time. A delay in one part of the shipment is essentially as harmful as a delay in all three. How can the logistics company synchronize these three geographically diverse shipments into one large order? And at what point should the synchronization take place?

LEAP! meets these logistics challenges because it not only provides the real-time visibility to detect changes in shipment schedules and locations, but it also provides intelligent agents that find the optimal time for merging shipments and synchronizing supply deliveries in the trading market. Because suppliers can use LEAP! on a local, distributed level, they have real-time visibility into the changes in your production process. In addition, they can take immediate action as necessary when the dynamics of demand require them to do so. This cuts shipping costs significantly while providing manufacturers with extra security against expensive potential delays.

A LEAP! BEYOND OTHER “SUPPLY CHAIN” SOFTWARE PROVIDERS

The “supply chain management” space is crowded with “dot com” competitors. LEAP!, however, is not solely about the improved management of the business process. It is, in fact, the only solution available today that provides a distributed, real-time communications and optimization superstructure that leverages intelligent agents to link the traditional supply chain to the B2x space to form a Web-centric trading market. In addition, LEAP! from Saltare.com empowers manufacturers to streamline their operations and integrate them across this distributed trading market in a zero latency environment. Other companies’ B2B portals do nothing to determine when materials should be ordered to optimize inventory and delivery, or how an entire supply chain can be coordinated and optimized for maximum efficiency.

LEAP! gets its input from ordering and configuration systems that may be part of existing ERP systems. It provides recommended manufacturing levels to MRP systems. And it provides the two-way manufacturer/supplier communications software that is the underpinning of a dynamic trading market. These features differ from those offered by other software companies, including:

- **Supply chain software.** Companies such as Commerce One and Ariba enable you to automate the supply chain for the procurement of non-strategic goods (such as office supplies). Saltare.com is complementary to these systems, because LEAP! focuses on enabling a trading market of core suppliers of components that go into mass customization products. Companies such as i2 offer only a limited collaborative environment that

operates in a centralized decision-making environment that does not permit simultaneous, real-time, many-to-many communications. LEAP! not only eliminates the noise in a many-to-many B2x environment, but it also synchronizes the trading market by providing trading partners with the unique ability to immediately act upon information.

- **ERP and MRP software.** LEAP! interfaces with these systems to communicate supply and demand information to ERP and MRP users in the way they are accustomed to viewing data.
- **Sales order-entry and configuration software.** Companies such as Calico provide this type of software—and it is an important part of the overall software suite needed for mass customization. Saltare.com obtains the results of these packages from the ERP systems to which they interface.

What differentiates LEAP! is its ability to empower manufacturing and service companies to take an aggressive leap toward achieving their business objectives—reduced costs, superior customer satisfaction, increased market share, strengthened competitiveness, and peak profitability—by fundamentally transforming their traditional, linear supply chains into open, Web-based trading markets in the B2x space. No other solution provides this link to a B2x environment. Only Saltare.com offers the intelligent agents and optimization algorithms to enable manufacturers and their trading partners to expand business on an exponential basis—simply, accurately, and intelligently.

SUGGESTED READING

“Creating Greater Customer Value by Synchronizing the Supply Chain,” Dr. Masud M. Arjmand and Stuart Roach, Andersen Consulting arjmand.ascet.com

“Synchronized Supply Chains: The New Frontier,” Dr. David L. Anderson, Andersen Consulting, and Dr. Hau Lee, Stanford University www.ascet.com/ascet/wp/wpAnderson.html

“Creating the Agile Supply Chain,” Martin Christopher, Cranfield School of Management www.ascet.com/ascet/wp/wpChristopher.html

Vision in Manufacturing 1998, a study by Deloitte & Touche
Executive Summary and related information available at: www.deloitte.com.au/content/dtgc_manufacturing_survey_exec.asp

“As You Like It,” *CIO Enterprise Magazine*
www.cio.com/archive/enterprise/021598_mass_content.html

“Management Strategies: A Failure to Communicate,” *The Manufacturing Report*, February 4, 1998
www.lionheartpub.com/tmr/mgtstrategy98/020498failcom.com

Advances in technology and changes in customer buying behavior are sending a clear message to manufacturing companies today: You must move toward a customer-driven business model now in order to remain competitive. Given this urgency, it is imperative for manufacturers to begin building the necessary superstructure to enable mass customization. LEAP! from Saltare.com not only provides that superstructure, but also enables companies to keep business simple in the process. As a result, LEAP! will carry global enterprises forward in the shift toward customer-driven business and customer satisfaction.



2755 Campus Drive, Suite 255
San Mateo, CA 94403
650.345.1200 phone
650.345.1830 fax
www.saltare.com