

An Action Plan for Building a Lean Supply Chain in the Apparel Industry

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Executive Summary

The goal of a lean supply chain is to meet customer demand the first time, every time and at the lowest cost. The same principles that underlie lean manufacturing—planned elimination of waste, continuous improvement of productivity, and an ongoing focus on customer value—apply to sourcing, replenishment and fulfillment as well, but require far closer collaboration between trading partners than has been typical for the apparel industry. Collaboration reduces administrative costs and supply chain inventory, which in turn improves cash flow, increases sales and preserves healthy margins. It improves customer service and eliminates costly financial penalties on manufacturers and distributors, and also enables flexibility and responsiveness in a volatile economy and marketplace.

Lean supply chain management and lean sourcing strategies are relatively new to the apparel industry, generating more talk than broad implementation to date. In this our final paper in our “Lean Is Fashionable” thought leadership series, we have defined a lean supply chain action plan with five concrete steps for building a collaborative infrastructure between your company and other members of your supply network. The action steps presented here represent an 11-year culmination of our and our customers’ real-world experiences in implementing lean supply chain strategies that are designed as a road map to achieving a more collaborative and profitable future.

Our lean supply chain action plan is based on these earlier discussions:

- The first paper, “Lean Supply Chain Management in the Apparel Industry,” discusses the real-world drivers of lean initiatives. It also looks at two companies whose practices and results can serve as benchmarks.
- The second paper, “From Lean Manufacturing to Lean Supply Chain: A Foundation for Change,” discusses the core principles of lean manufacturing and also develops the theoretical basis for applying lean principles outside the four walls of your company.

Feel free e-mail us at infous@lawson.com if you want a previous paper or the full series.

Lean Is Fashionable

Lean originated as a manufacturing philosophy and is associated with Toyota in most people’s minds. Its proven success in maximizing value to the customer and minimizing waste has led the most advanced enterprises to apply lean concepts to supply chain management and materials sourcing issues.

Certain pioneers are even applying lean thinking to a services business model. According to a recent *Business Week* article, Wipro (an information technology leader in India) modeled its business-process outsourcing operations on Toyota’s lean management principles and improved productivity by 43 percent. Wipro also reduced the percentage of rework from 18 percent to just two percent.

It is not surprising then that the apparel industry wants to be as lean as a super-model. Fashion is now a “design and distribute” industry rather than one dominated by manufacturers, as it was when our careers began. Most manufacturing has shifted to low-labor-rate countries, while the design and retailing powers remain based in the US and Europe. Leading design firms led by visionaries such as Ralph Lauren, Calvin Klein and Martha Stewart have refashioned the industry by their focus on

lifestyle marketing. Profitability now lies in upselling and cross-selling consumers on coordinated purchases. Specialty firms with single products have faded away, been acquired, or become niche providers. Both these movements are responsible for vastly increasing the complexity and scope of fashion industry operations.

Lean Suits the Circumstances

Lean thinkers speak of the value stream—the sequence of actions and processes by which value is generated and delivered to the end customer. On the fashion side of the apparel industry (as apposed to the commodity side), the value stream generally begins like this: Designers create concepts from which merchandisers assemble collections—a line of coordinated offerings. Then the merchandisers try to estimate what the demand is going to be. At the same time that they begin to offer these items for sale, their production planners start sourcing materials for bulk orders. As sourcing concludes, the company begins to sell the product for future delivery. In

Action Steps for a Lean Strategy

Building the Collaborative Infrastructure:

1. Build a core infrastructure and collaboration internally first, then extend outward.

- Have an appropriate technology that is open in its architecture.
- Create internal cooperation.
- Begin to move out into your supplier network. Work by tiers. Extend access to a common view of the data and create process visibility by leveraging your technology:
- Externalize relevant business processes and data via Internet portals
- Introduce a translation tool that allows you to communicate with partners on different systems using universal formats (such as XML, HTML, EDI, etc.).

2. Pick your partners.

- Quantify the criteria for optimal supply chain performance.
- Select the partners who meet those criteria.
- Stratify the qualified partners so that you know what rank they fall into and why. There should be no more than three to five Tier A suppliers.

3. Create a board of directors for the virtual entity—the lean supply chain that feeds all the partner companies.

- Put key players from all partner companies on the board and hold regular meetings.
- Provide the board with demand planning and supply chain planning tools.
- Educate and motivate them.
- Practice open-book management.

4. Work on the demand side.

- Make demand planning an iterative process that the board directs at the strategy level and multi-disciplinary teams refine across company boundaries.
- Include forecasting as well as elements of design, design planning and product development.

5. Cross-train key personnel in their partners' business.

- Exchange personnel with similar or complementary job functions.

The biggest benefits accrue by cross-training in processes that tend to bottleneck.

other industries, when you sell it, you ship it. In the apparel industry, half the goods are sold “at once” and the rest are sold “for future delivery”.

Development is generally an ongoing process with a life of its own, interfacing with many concurrent production, sales, and supplier and customer relationship processes. This area presents an excellent opportunity for the fashion industry to get lean: to eliminate waste (including wasted time) from overlapping processes, and to synchronize the global supply chain, which is essential to on-time delivery and maintaining a competitive edge.

In the absence of agile supply chains, some retailers are ignoring the old adage that you can't sell what you don't have. Instead they are settling for the pragmatic approach that less inventory is an acceptable trade-off for a lost sale. More aggressive (and successful) retailers want the ability to respond instantly to changes in consumer demand, get products into the shops more quickly in the right specifications and size ranges, and be more proactive when things go wrong.

Because demand changes quickly, you can't meet it quickly enough without an agile, collaborative supply chain. A lean supply chain is, in effect, a virtual assembly line that is location independent, involving the suppliers of all product material components linked by a collaborative infrastructure.

A Logical Place to Start

Don't wait until you have the entire collection put together. When you have an 80 percent certainty that these designs are going to fly in the market (based on merchandiser sales of small discrete batches of viable items), release the designs to the supply chain. Let your partners start developing the patterns and sourcing the materials, reducing lag time incrementally.

Realistically, at some later point you'll have to mitigate the risk of starting to cut and sew before the commitment orders are signed, but making a pattern early is not a huge financial risk. There is no best practice for spreading risk in a supply network—yet. However, we have seen customers successfully trade off manageable risk for decreased cycle time. Failure to take on the lean challenge is a far greater risk. Competitive pressures are driving down prices and squeezing margins in all industries, while tens of billions of dollars in finished goods currently sit idle in different areas of the fashion supply chain, tying up scarce capital. Failure to embrace change is tremendously costly and ultimately fatal.

Action Steps for Building a Collaborative Infrastructure

Your biggest challenge in creating a lean supply chain will be building an infrastructure that supports collaboration. That task includes instilling the lean psychology throughout your organization, breaking down barriers inside and between departments and companies, building collaborative relationships based on trust, and leveraging collaborative technology. There is a lot of work that must be done prior to buying software—ours, or anyone else's. You can't become lean on command. It takes time, effort, education, support from top management, and an entire company commitment to the vision.

That being said, when the time comes to consider collaborative solutions, Lawson M3 Enterprise Application System (Lawson M3) makes collaboration easy to establish and participate in, and the results easier to track. A range of vendor performance analysis tools and scorecards help determine whether supply chain partners are fulfilling their responsibilities and cooperating to achieve agreed-upon criteria for success.

The action steps proposed below are grounded in lean manufacturing theory and are based on experience—the experience of Lawson customers, of the Lawson fashion industry organization that implemented its first enterprise solution 11 years ago, and of experience gained by way of our own two careers. We offer them as starting points and interim destinations as you set out on your journey.

1. Build a core infrastructure and collaboration network internally first, then extend out.

Conferences on collaborative commerce are a waste of time if you don't have collaboration inside your own organization. If purchasing and production control systems can't talk to each other, they can't effectively collaborate with suppliers or customers.

First, you need the core infrastructure provided by a product like Lawson M3 Enterprise Application System to create internal enterprise-wide integration and cooperation. Many organizations are hampered by operating with separate "islands" of information, resulting in time-intensive manual data transfer and input, and frequent data conflicts. In the long run, it's much more expensive to keep separate systems accurate and up to date than to invest in an enterprise system.

2. Pick your partners.

The globalization of the supply chain has brought cultures with very different business philosophies to the same bargaining table. Cultural differences can sometimes affect the selection of partners. For example, Americans often go by the "Don't put all your eggs in one basket" philosophy and, accordingly, choose a large number of vendors for insurance (and price) considerations, whereas Japanese business thinkers, on the other hand, more often subscribe to the "Keep all your eggs in one basket. Just make sure it is a strong basket and carry it carefully" theory, supporting fewer but closer supplier relationships. A global business or partnership will have to negotiate some middle way.

Good collaborative relationships require partners you can rely on and trust because partner companies will integrate with your business processes at the critical business-data level, sharing sales and sourcing information, goals and action plans.

Vendor Analysis

As you evaluate and select partners, also determine which are the most meaningful relationships and rank them. Quantify both the criteria for admission and the criteria for maintaining partnership status. The logical order for the selection process is:

- Quantify your criteria for optimal supply chain performance. These criteria may derive from your business plan and key performance indicators or model the actual behavior of existing suppliers. In either case it is essential to have numbers and defined attributes to track against.
- Select the partners who meet those criteria.
- Stratify the qualified partners so that you know what rank they fall into and why.

Lawson has performance analysis tools and scorecards that allow you to identify which of your current suppliers you want to keep and work with more closely. Supplier scorecards are dynamically generated in the data warehouse using business intelligence tools. They combine supplier statistics on delivery and quality (from a predefined application in the supplier relationship management solution) with other user-defined criteria. Usually those criteria include information relative to number of orders, sell-through of product, previous prices, previous margins on product, and so on pulled from various sources and presented in a single scorecard view. This ability enables the identification and development of promising small suppliers who might otherwise be overlooked by paper-based assessments.

Tier Assignment

Start by looking at your existing supply network and assign your suppliers to tiers. This is the “ABC” approach that we recommend:

- A vendors are those with whom you have established collaborative relationships. You can trust them. They generally supply your core merchandise. Probably 80 percent of your suppliers fall into the A category initially. Ultimately, you want to have three to five Tier A suppliers—better three than five.
- B vendors are good suppliers in areas that will be advantageous in the future. These are your A vendors in training, since your current A list will eventually become too expensive or will have its capacity absorbed by global competitors.
- C vendors are your niche vendors. They make the critical one-of-a-kind items that are differentiators, giving you less latitude in negotiating terms.

Once you have identified your A, B, and C suppliers, take the best performers from each of the categories and match them up in teams or sets to build redundancy into your supply chain. Those two or three sets of suppliers will be the foundation of your business. Carve your agreements with them into stone; you don't want to have to worry about unpredictability in your supply chain.

Whether you are dealing with an A, B or C vendor, opportunistic sourcing will never build a collaborative supply chain. You may be able to achieve certain elements of collaboration or leanness in a portion of what you do, assuming you still have some rock-solid suppliers. Quite frankly, if you are an opportunistic sourcer, you are also going to be dealing with opportunistic suppliers, jeopardizing reliable supply for short-term gain.

A collaborative, long-term relationship is most profitable over time. Both parties invest in the partnership, confident of substantial outcomes instead of grasping at short-term gains. If your fashion organization believes it has to find new vendors every year or every season, chances are that lean is not going to be successful for you. It is absolutely essential that your partners profit from the relationship.

Action Steps to Achieve Lean Operations

Making Processes Run Lean

1. Take the lag time out of the design process by feeding "at once" work and future delivery orders into the supply chain incrementally instead of waiting until the whole collection is put together. Introduce some measure of collaboration into:
 - Product development. Collaborative product commerce (CPC) aims to reduce communication costs, delays and rework by giving each node in the supply chain access to design information at any time
 - Demand management. This does not belong to marketing and sales only. Involve production, logistics, supply chain planning and finance as well.
 - Sales support. Design pre- and post-sales support around the customer.
2. Extend customer relationship management (CRM) activities out into the supply chain. Apply lean techniques to CRM:
 - Establish a customer-centric supply chain. Map the value stream inside each partner organization and throughout the supply chain so that everybody understands what adds value for the end customer and what does not.
 - Determine what each customer values, and use these metrics to design products, services and touch points.
 - Devise a map of customer segments based on these metrics. Use it to focus company service efforts around processes that support and encourage the buying behavior of the firm's top customers. Figure out how to apply them to less profitable marketplace segments.
 - Develop and implement the solution. Combine the metrics and relationship-building capabilities of CRM with the electronic links provided by today's Internet technologies.
 - Monitor; measure and refine. The goal of lean is continuous improvement.
3. Eliminate waste from manufacturing, logistics, receiving and distribution. This principle, with mechanisms for synchronizing the supply chain, formed the focus of the second paper in this series, "From Lean Manufacturing to Lean Supply Chain: A Foundation for Change." Refer to that paper for a discussion of eliminating waste.
4. Develop detailed return, recycle and repair programs that enable the efficient management of product life cycles. Returns management is a reverse logistics function that affects almost every link in the supply chain. It can provide companies with a wealth of information on product performance, ease of use, defects and consumer expectations.

3. Create a board of directors for the virtual entity—the lean supply chain.

A lean supply chain needs direction and cannot be completely under the thumb of any one member; it must pursue the mutual interests of all members. It makes sense to treat the collaborative supply chain as an entity in itself, with key players in member organizations acting as a board of directors. You need their buy-in and active participation in the lean supply chain to achieve the following mutual benefits:

- Improved time to market
- Reduced supply chain costs
- More pertinent information of higher quality
- Better and faster response to consumer requirements.

Educate the key players about the benefits to them so they can carry the torch to their organization and train their own people. Joint planning is also necessary.

A collaborative infrastructure is more than just architecture, though the architecture is critical. You have to have the proper system support. Otherwise, collaborative planning, negotiation and documentation will become too cumbersome to support. Lawson M3 Enterprise Application System provides high-level planning tools—Movex Demand Planner and Movex Supply Chain Planner—to help the virtual board identify opportunities and prepare to take advantage of them.

Movex Demand Planner and Movex Supply Chain Planner work together. Supply Chain Planner helps determine the best way of working together to produce the most efficient supplier relationship. Demand Planner aggregates anticipated or estimated demand data over a period of time for specific products as well as product concepts, which may be shared with key suppliers.

Time Out for a Reality Check

One of the Lawson customers—a VP of operations for a major fashion company—had followed all three preliminary steps described above, working with his three A suppliers on production planning. He said to them, “We have to come away with a gross margin of X, which means that your costs are a bit too high. So how can the four of us get to the gross margin target that this organization has to have? How can we achieve that?” He didn’t say, “You have to do this,” but rather “How can we do this together?”

In this industry, companies seldom share information like gross margin. But in implementing a successful collaborative environment, adopting the principles of open-book business helps establish a culture of trust. Sharing your pricing information with A suppliers essentially means they have to share their cost information with you. Together, all four partners discussed areas that could yield savings to reach the gross margin target (such as built-in buffers for possible returns and anticipated waste, as well as minor design changes) and arrived at a mutually beneficial solution. But there is no denying that you’ll be stepping away from typical price negotiations, and that it will feel risky at first.

4. Work on the demand side.

Now you've got a base of suppliers who are ready to deal with your demand requirements, and you feel very comfortable working with them. You know that quality product will be available when needed. It is time to work on the demand side. How are you going to create the demand, where is it going to come from, and what is the level of demand going to be? Ultimately you want your supply chain to be demand driven (a concept explored in the first two papers of this series), but right now you want to give your supplier team business.

Use Movex Demand Planner, both internally and collaboratively, to maximize customer service levels, sales, revenue and profitability. This application allows you to aggregate customer demand information from a variety of sources, as well as manipulate demand calculations dynamically.

5. "Cross-train" key personnel in their partners' business.

Many organizations already practice cross-training, but consider the expanded benefits of cross-company training (that is, "cross-pollination") where people from one organization work for a period of time in the associate company to understand its issues. If you were to exchange purchasing managers with one or more of your collaborative partners for a period of time, their deepened comprehension of the other's culture and business issues would bring tremendous benefits to the collaborative process.

Collaborative Technology for a Lean Supply Chain

After you create a collaborative infrastructure and environment internally, implementing a product like Lawson M3 Enterprise Application System literally forces you to collaborate. Every partner deals with one data source and every action creates a reaction on the plant floor and in the supply chain. Your people need time to assimilate this new dynamic and understand what happens upstream and downstream from them as a result of their actions.

Portals

Now you begin to externalize this environment. With Lawson M3 Enterprise Application System's open architecture, you have the ability to create and participate in transactions via portals you open for your customers and suppliers. Portals enable you to push orders, receive order updates, and send specifications changes—communicating directly with your suppliers in real time.

Web-based portals are platform independent, which eliminates proprietary software barriers to direct communication. When machines must communicate program to program, Lawson offers message-based integration through Movex Enterprise Collaborator.

Lawson M3 Enterprise Application System is written in Java and componentized—any functional component or application element can be lifted into a portal. For example, you can put the procurement solutions into a portal so that everything to do with a purchase order (submission, confirmation, amendment) can be accomplished through the portal rather than by fax or e-mail, which require additional manual work upon receipt. From the lean perspective, that work is waste to be eliminated.

There are two key benefits to portals:

- Portals are not one-way doors, but rather an interactive pipeline. By extending the benefits of integrated data to the entire supply chain, they are relationship-building tools.
- Portals allow you to group and synchronize components around decision points rather than leaving them in functional silos.

As a working example, a supplier portal supporting new customer orders might include number of products on order; sold and delivered, as well as future delivery dates. If the supplier runs into an obstacle, they have all your customer order and delivery date information before them and can work out an acceptable compromise with you. When your suppliers know what your legitimate demands and requirements are, they can deliver for you far more effectively. You can just as easily share their status regarding your vendor performance analysis reports. Feedback on how well they are meeting your expectations helps build the relationship.

A final example: Compliance reporting is an excellent use for portal technology. Everyone in the apparel industry is concerned with compliance on such issues as human rights, environmental regulations, homeland security and transportation security. The organization that is sourcing is held responsible for its suppliers' actions. Portals are an excellent supplier record-keeping tool because you can build forms in your portal for compliance reporting or for attaching copies of compliance records or certificates before an order ships.

How Lawson M3 Enterprise Application System Supports Lean Sourcing and a Lean Supply Chain

Collaborative Technology

- An enterprise system like Lawson M3 Enterprise Application System literally forces you to collaborate because every transaction depends on a single integrated data source; every action ripples throughout the environment, impacting other actors.
- The Lawson ERP system supports lean manufacturing. Notably, its new Theory of Constraints (TOC) production planning solution shortens the time necessary to realize the benefits of lean manufacturing. It quickly delivers increases in throughput, minimizes inventory and reduces operating expenses. It is a low-risk tool that can be implemented in under three months with limited resources, yet provides a high return on investment.
- The Lawson open architecture provides the ability to create and participate in transactions through portals that you open for both your customers and suppliers. Portals are not one-way doors, but rather an interactive pipeline through which you can both push and pull information. They extend the benefits of integration to the entire supply chain.
- The Lawson M3 Enterprise Application System is written in Java and componentized—any functional component or element can be lifted into a portal. Portals allow you to group and synchronize components around decision points rather than leaving them in functional silos.
- The Lawson Movex Enterprise Collaborator (MEC) enables you to talk program to program with other systems, or system to system. It provides message-based integration between Lawson applications and other applications, enabling business process collaboration within and across enterprises. You quickly achieve cost-efficient business integration since all the technology is already in place.

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How Lawson M3 Enterprise Application System Supports Lean Sourcing and a Lean Supply Chain (continued from page 11)

Supplier Relationship Management

- The Lawson procurement application efficiently supports all aspects of procurement including supplier selection and evaluation, creation and renewal of supplier agreements, requisitioning, purchase order processing and monitoring, receiving and quality control, claims, invoice control, and statistics.
- Everything to do with purchase orders (submission, confirmation, amendment, etc.) can be pushed out to a portal. This speeds up payments to suppliers, rewarding them for collaboration, and eliminates manual work and clerical errors.
- IAS includes vendor performance analysis tools and scorecards that make it easier to determine whether your supply chain partners are actually fulfilling their responsibilities and/or working in a collaborative manner.
- Supplier statistics on delivery and quality are included in a predefined application within IAS. Supplier scorecards are dynamically generated in the data warehouse, using business intelligence tools. They combine supplier statistics with other user-defined criteria (such as information on prices and margins, vendor history, frequency of orders, etc.) The ability to pull information from various sources and present it in a single scorecard view is one of the advantages of IAS.

Supply Chain Management

- Movex Demand Planner optimizes the flow of information in the extended supply chain. It determines the best use of resources to maximize customer service levels, sales revenue and profitability. It supports a collaborative stepwise workflow using client-server architecture for the decentralized collection of customer demand information. Dynamic grouping and data aggregation enable you to manipulate demand. Extensive interactive decision support functionality and easy-to-use graphic displays help create understanding among partners.
- Movex Supply Chain Planner optimizes material flow in the extended supply chain. A powerful decision-support tool for supply chain planning on the tactical and strategic levels, it interacts with Demand Planner to produce a financially optimized master demand and delivery schedule. The master demand schedule and sourcing decisions serve as input to distribution and production planning.

Business Process Collaboration

Movex Enterprise Collaborator (MEC) is essentially a translation tool that enables dissimilar computing platforms to talk program to program or system to system. It provides message-based integration between Movex applications and other applications in order to enable business process collaboration within and across enterprises without affecting individual systems' proprietary code.

With MEC, your enterprise can quickly achieve cost-efficient business integration since all the technology is already in place, including flexible development tools and several industry-standard interfaces. These factors diminish the risk inherent in business integration projects and greatly speed up the implementation process. MEC can be used in three different ways:

- As an EDI solution, supporting industry standards like EANCOM, ODETTE, VDA, TRADACOMS and X.12, as well as a variety of bank integration standards
- As a messaging connector, using Movex business logic as XML interface documents called Movex Business Messages (MBM) that interact via request/reply scenarios. XML-based documents bypass application interface issues so that the focus can be on transformation and business process support rather than technical infrastructure and business object compositions.
- As a lightweight message broker, integrating satellite applications with your Movex applications in order to access messages from non-Movex business applications. The focus of the implementation moves from technical integration issues to message translation and business process support.

Conclusion

Lean sourcing and lean supply chain management are beginning to create a buzz in the apparel industry. We have offered five action steps for building a collaborative infrastructure and outlined both the human and the necessary collaborative systems technology requirements to support your lean endeavor. This is the Lawson contribution to stimulating thought and discussion in the industry on what we believe is a survival issue for many companies.

The benefits to be realized from a lean supply chain include:

- Improved time to market
- Reduced supply chain costs
- More pertinent and timely information about consumer demand
- Better and faster response to consumer requirements.

Achieving these objectives will require supply chain partners to focus on process improvements between businesses. We believe that appropriate technology can both model and facilitate the collaborative infrastructure of the lean supply chain. Open sharing of business information often goes against the grain of this industry, but only trust and vision will bring the lean supply chain into existence.

Meet the Authors

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A 25-year veteran of the textile, apparel and sewn-products industries, Bob McKee is the fashion industry solutions director for Lawson, a leading supplier of Enterprise Resource Planning (ERP) software to the mid-market. He is responsible for software and solutions design, development and marketing for the Lawson US apparel business. He serves the company's apparel customers directly by providing counsel on reducing cycle times, forecasting demand planning, managing global production and responding to industry changes.

Prior to his career in software, McKee spent many years in the apparel manufacturing industry where he held senior-level operations and sourcing positions for companies including O'Bryan Brothers, Bachrach Clothing, The Company Store, Warnaco, and Hartmarx. During this time, he oversaw importing/exporting from over 30 countries, raw material and inventory management, inter-plant transportation, and production planning and scheduling. A member of AAFA and APICS, McKee frequently speaks at global supply chain and apparel industry events and has contributed to many leading publications.

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A supply chain expert and published author, David Ross, PhD, is a learning consultant at Lawson, a leading supplier of Enterprise Resource Planning (ERP) software to the mid-market. A seasoned executive with more than 30 years of industry experience, Dr. Ross advises mid-market manufacturing, food and beverage, and apparel customers on how technology can provide a competitive advantage in today's complex, global supply chains.

Previously, Dr. Ross held senior operations management positions within the manufacturing and distribution industries at companies including McMaster-Carr Supply Company and Illinois Tool Works. He then focused on technology within the ERP industry, working with Computer Sciences Corp., SSA, and Epicor. Besides numerous articles, he has published three books on logistics and supply chain management. His first book, *Distribution Planning and Control* (Kluwer, 1996), is a cornerstone for the APICS Master Planning of Resources CPIM course. In addition, he has written *Competing Through Supply Chain Management* (Kluwer, 1998) and *Introduction to e-Supply Chain Management* (St. Lucie, 2003).

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