

Planning at a Global Scale

i2's planning solutions help VF operate a truly demand-driven supply chain.

Ellen Martin is the vice president of Supply Chain Systems at VF Corp., the largest apparel manufacturer in the world, with 2005 revenue of \$6.5 billion. The company operates as a wholesaler, owning 48 brands, with plans for further acquisitions as revenue growth holds steady at 6 – 8 percent per year. VF brands include Wrangler, Lee, Riders, Rustler, Vans, Reef, Napapijri, Kipling, Nautica, The North Face, JanSport, Eastpak, Vassarette, Bestform and Lily of France. The company categorizes its mix of companies as “coalitions” in these five areas: jeanswear, outdoor, intimates, imagewear and sportswear.

VF uses i2 solutions for production planning and demand fulfillment across multiple business units. At i2 Planet 2006 in May, the company received the i2 Chairman's Award for its innovation in supply chain management (see Ken Sharma Award of Excellence, page 48). The company's global headquarters are in Greensboro, N.C., where we interviewed Martin in May 2006.

How long have you been at VF?

Oddly enough, working for this company has been my one and only job—so, for more than 30 years. But it's not as simple as that. I graduated from Guilford College in Greensboro with a major in psychology and worked for seven years at Blue Bell, which owned the Wrangler brand. I worked in customer service, accounts receivable and other parts of the business. I worked closely with what was then called the data processing department. They asked me to “come upstairs” and join the data processing group in the mid-1970s. Information Systems departments were just getting ramped up at big companies. And you have to realize, apparel companies have never been regarded as a leader of technology. We've dispelled that misconception at VF, but I'll explain how later.

In the early 1980s, Blue Bell was threatened with an unfriendly takeover, and several of the executives took the company private. At that time, the company was renamed after its leading brand, Wrangler. In 1986, though, the owners sold the company to VF and the company was renamed again. So, you see, I've been at three companies, but they are all connected—they just morphed into each other.



Photos by Steve Exam

You must have seen a lot of change in IS and in supply chain management over the years. How did your job morph into its current focus on supply chain systems?

I started concentrating on supply chain systems in 1985, so you can imagine what's happened since then. But let me draw some contrasts for you. When VF bought Wrangler, it was a financial holding company, and the businesses were autonomous. Wrangler had plants all over the United States and distribution centers (DCs) sitting close to the plants. We had a divisional philosophy, with a “hole in the wall” mentality. By that, I mean we would truck the cut work to the sewers, sew the garment, then

Pays Off for VF Corp.

truck the sewn garments back to divisional headquarters for laundering, then pass them “through the hole in the wall” to the DCs. We could take an order on Monday and ship it out on Friday, because all of these functions were within a few hours’ drive time. We had our own fleet of trucks then, too.

Our longest lead time was procuring the primary body material, and one of the reasons the plants were in the South was because that’s where the mills were. Everything was made in the South and in the United States. It was a totally vertical operation. At that point, supply chain systems consisted of tracking and tracing what was inside of our sew lines, so we could see where things were and what the fallout rate was in order to figure out ways to reduce costs and speed up processes, such as washing processes, for instance.

Systems looked inside the manufacturing locations to optimize the reporting capability, to track the goods from A to B and to pay the people. Quality was important, and lead times were short. Order entry at that time was a paper order mailed to us and entered manually into the system.

How has that changed today?

By 1995–97 we were doing some sourcing of finished product. But because of the 807 program—giving U.S. companies tax breaks to manufacture in the Caribbean and Latin America—we started doing some manufacturing south of the border to augment our production. Since that time, we have done a 180-degree shift. We now own no factories in the United States, except for one in El Paso for Wrangler. We do have distribution centers in the United States and a couple of laundries here. But the garments are sewn offshore, and the cutting is moving offshore too.

Our first move was to go south, into Mexico and Costa Rica, Honduras and the Dominican Republic—we built or bought factories and still own facilities there. The plant managers and engineers are Americans who moved there to manage the plants, and this engineering expertise has really paid off. But moving offshore lengthened our lead time, putting more pressure on the accuracy of our planning, which is one of the big areas i2 has helped us with.

Now you have Asia coming up, and their labor is even cheaper. But when you add on the costs associated with the shipping and the customs brokering and the risk and relationship management of producing as far away as

Bangladesh, Vietnam and China, there’s a huge cost. Instead of a one-week lead time, you have a six-month lead time. And as soon as you place a purchase order, you own inventory, and you’re carrying it for a long time—longer than in the past. We have millions of dollars in inventory in this “float,” typically.

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This outsourcing puts a huge challenge on the supply chain. The challenges in the last 10 years have changed substantially. We still need to have very accurate plans of what needs to be made, but factors such as inventory policies, safety stocks and risk management—not to mention relationship management (we have hundreds of contract manufacturers)—have become much higher priorities than they were before.

We are literally making to forecast, not making to order. The product had better be on the shelf when the order comes in, or you’ll miss the sale because, with a six-month lead time, you won’t have time to produce it fast enough to order. You would miss the season altogether. So we went from a one-week lead time to a four-week lead time when we moved down south, and to a six-month lead time for Asia.

Are the earlier technology tools still useful—tools like EDI?

Electronic data interchange (EDI) came into being to handle the information flow between the wholesaler and the retailer. It wasn’t used so much originally to handle the back end of the vertical, the flow between the supplier and the manufacturer. In the early days, the suppliers tended to be less into technology and less able to do the EDI transactions and were not really incented to participate in EDI.

But today we use EDI for interchanges with both suppliers and retailers. It’s absolutely critical and has helped the apparel industry go paperless. Previous to EDI, the interchanges of data with customers were all done on paper with custom code. So we had all of these individualized programs with different formats. VICS (the Voluntary Interindustry Commerce Solutions Association) standardized the documents used to transfer things like

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notices of shipment and invoices. And EDI, which uses third-party mailboxes, provided the firewall protections that all companies need when transferring data.

Since we're in the acronyms, what about VMI?

VF got involved early on with vendor-managed inventory (VMI). We were one of the front-runners with this, and we still do VMI for Wal-Mart, which is our largest customer. We have all of their inventory and all

their own form of inventory management. Target is an example. But even these retailers share their POS data with us.

POS is a priceless piece of documentation. I'm not sure we're getting the most benefit from it yet, though. The reason is that with long lead times, a lot can change between the time you get the POS data and do the analysis on it, which is daily in the retail industry, and the time your product ships. With the four weeks' lead time we get by manufacturing in Latin America, we can utilize POS



of their store models—the profile of each store's demographics and psychographics. We were also one of the first apparel companies to get POS (point-of-sale) data, when uniform product coding, or bar coding, came along. This has been a big advantage. Consider the case of Wal-Mart. All of the POS data show us when a Wal-Mart store is dropping below its model, enabling us as a VMI vendor to issue an order—automatically—to ship to the store to get it back up to its model. VF and Wal-Mart have shown that this is a successful approach to inventory management. We've both increased our sales as a result. Most retailers, however, have taken back VMI and are doing

data to make a difference. But with the longer lead time of the Far East, I'm not so sure. Here's how it plays out for The North Face, for instance. They manufacture in Asia and place their order six months in advance. They may do two or three orders in a season. They start with a small order—just samples for their salespeople and athletes to test in the field. There's no POS data available yet, because the product has not been purchased or sold. Then they make a second buy based on what the field research is showing. And if the product is doing well, there may be a third buy. In this case, the daily POS data are helping them forecast not for the season they're in, but for the next season.

What about RFID? Is VF getting benefit from it now?

We are using it. As one of Wal-Mart's top 100 vendors, we had to comply with their request to code all cartons and pallets with RFID (radio frequency identification). That's going well. Target has requested the same. While it's good for the stores, I'm not seeing a big benefit to VF yet. Unless and until we can code a garment during construction and see it move through a factory, so we can trace WIP (work in process), we do not expect to get tremendous value from RFID.

The logistics world might get value from it, when they place cartons in containers and then "RFID" the container. In other words, scanning at certain points may offer useful visibility. And, as VF acquires more retailers and becomes more of a retailer in the future, RFID may help us track individual garments, especially the more expensive ones.

VF has invested a lot in supply chain systems in the past decade or so. What motivated you to make this investment?

In the early 1990s, our headquarters were in Reading, Pa. The president and chairman of the board of VF retired, and Mackey McDonald, the CEO of Wrangler—which was located in Greensboro, N.C.—became VF's new CEO and chairman of the board. That's when the headquarters moved to Greensboro. Mackey is the one who formed the "coalitions"—imagewear, jeanswear, outdoor, sportswear and intimates. He wanted to centralize functions that stretch across companies and to share best practices among all the brands and coalitions. So he instituted something called Marketing Response System 2000 at VF.

The executives at the company realized quickly that without a system to enable those practices, the company couldn't get to where it wanted to go. They consider IS strategic. They not only allowed us to go down this path, but they have funded us substantively and consistently. They value the supply chain; although it's not glitzy, they realize that even if you have the best designers and the best products, if you can't get them delivered on time, you're not going to make a dime.

So we started looking at systems. SAP was making inroads in the United States, and Reebok was looking at its systems at the same time that we were. The problem was, clothes and footwear come in sizes, and SAP's systems did not address the size issue. We then formed a joint partnership with Reebok to develop an apparel footwear solution (now known as AFS) with SAP. And this has been very successful.

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SAP provides the backbone enterprise resource planning (ERP) system at VF. And, following our best-of-breed philosophy, we use several other solutions for specialized functions, such as tracking and tracing through Asian plants, commercial invoicing and customs clearance. It was during our search for best-of-breed systems that we came across i2.

We looked to i2 to help us do constraint-based, SKU-level planning. We wanted to be able to influence the functionality of the software, as well as to upgrade it. We had a lot of complexity to deal with. Not only does apparel have a lot of components and moving parts, the supply chain is complex: acquiring raw material; executing complex manufacturing processes, requiring many steps and skills; supplying retailers with enough inventory; accounting for the fluctuations of seasonality and fashion, color and size. We realized we needed a planning system that could address all of these elements and one that could be scaled to our volumes. VF has 48 brands currently and is in acquisition mode.

What are your volumes?

In a year, VF has 850,000 SKUs of style, color and size. And our business is getting more and more seasonal, so that 850,000 is not the same 850,000 every year. As much as 60 percent of it could change. And it could change twice a year. Not to mention the new product introductions that our companies are making every year. Think of The North Face with its cutting-edge technical gear, or Nautica, which just introduced a women's line of apparel this spring. And then, there are our "classics," like the 13MWZ. This product is so well known that cowboys ask for it by its stock number. It stands for 13th prototype of men's jeans, with zipper. Wrangler makes it, and it's offered in 110 combinations of waist and inseam dimensions. It has been around for decades.

We asked i2 to help us solve these simultaneous equations of capacity versus demand, versus inventory levels, versus raw material availability at the scale at which we operate. As with all of our software partnerships, we worked closely with the company. The result is the MAP module of i2 Supply Chain Planner. MAP (material asset planning) is a solver/engine that deals with high levels of simultaneous constraints and large volumes of data. We've done well with it, and so has i2.

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We have now installed i2 Supply Chain Planner in all but one of our coalitions, and we're getting to that one soon. To give you an example of its power, in jeanswear, the engine processes 1 million records of customer demand, with full raw material and sewing capacity constraints, in four hours—and that data look out at a six-month horizon.

What are VF's biggest supply chain challenges now?

For those of our companies tied to manufacture in the Far East, we have to shorten the six-month lead time. I've asked everyone why it has to take so long. They say the product is 40 days on the water. But where is it the rest of the time? The sewing takes the same time, wherever it's done, as do some of the other operations, like cutting and

that says, "In the next number of months, this is the amount we'll need. We are going to give the manufacturing vendors a PO, but we are not going to detail the sizes until the last minute."

Another challenge for us is doing more direct ship to our customers, making our product retail-ready straight from the factory. We're working with 3PLs (third-party logistics companies) on this challenge. More and more of our contracted sewing factories are offering services such as polybagging, putting hangers on garments, sewing in labels and attaching price tags. We can offer our engineering expertise to make them more efficient at this. I believe by doing these things we can get the lead times down to where the POS data will be of greater use, helping us be more responsive.



laundering. The answer is in acquiring the raw material. This is one of the longest lead-time factors. Because, of course, no one is going to make fabric without a purchase order in hand.

So what we're working on is increasing that verticality between the mill and the manufacturer and the wholesaler by creating partnerships. We've developed a raw material forecast for this purpose. It's a forward look based on the plans that come out of Supply Chain Planner. This forecast says, "Based on the bill of materials for this item, this is what we think is coming your way. And we're asking you to take a risk with us to at least do the 'griege goods'—the undyed goods. Make the fabric to this point, and we'll tell you what color to dye it when we have further refined the forecast."

GORE-TEX® is a good example of this. It's in short supply across the world. We need to get our hands on "x" yards of it, so we'll typically give W.L. Gore a forecast

Any other large challenge for the company as a whole?

Yes, I think we're likely to evolve into being more of a marketing and retail company as we continue to acquire lifestyle companies. But retail will be a real challenge for us, because we're not retailers. We think we're very good at marketing and wholesaling, but have little experience in retailing. So we have a whole new learning curve there. We don't want to hurt one channel while building another, so we have to learn how to stock our own stores' shelves so as not to hurt our customers, the retailers who have been our bread and butter.

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