

An SDI Case Study:



Liz Claiborne

Product Movement Initiative



A Retail Merchandise

Distribution

Success Story

SDI Helps Liz Claiborne Adapt to Changing Retail Landscape

Liz Claiborne, Inc. designs and markets an extensive range of women's and men's fashion apparel and accessories. In addition to its namesake label, its brands include Dana Buchman, Lucky Brand, Mexx, Monet Group, and specialty brands Crazy Horse, Emma James, First Issue and Villager. The company also distributes licensed brands such as City DKNY, DKYN Jeans, and Kenneth Cole New York.

The company was established in 1976 and since then has grown into a \$3.1 billion fashion giant.

As the company grew, its need for warehouse space and distribution capacity also increased. These needs were met by adding distribution facilities that duplicated the manual storage and order processing systems employed at its original "HQ1" distribution center in North Bergen, NJ. At one point, the company operated more than 13 distribution centers. It was not taking advantage of its size and scale or the current state of technology. The number of its distribution facilities needed to be rationalized. Moreover, the company's home grown warehousing and order fulfillment software systems were not Y2K compliant.

The company had also stated a strategic goal of servicing 96 percent of its customers' and company-owned retail stores within two days of receiving their orders.

The Changing Retail Landscape

The competitive landscape was also changing. Once Liz Claiborne could dictate shipping terms and even make substitutions for ordered merchandise due to its size and the importance of its labels to its department store customers. But by the mid-1990s consolidation in the department store industry had reduced the number of players tremendous-



Liz Claiborne distributes a variety of women's and men's fashion apparel brands.

ly and shifted the balance of power to the remaining chains. The remaining chains were also eliminating services performed in their own distribution centers and demanding that such work be performed by their merchandise vendors instead. They were also increasing chargebacks for shipping, packing, labeling and distribution errors.

With the consolidation came a concentration of shipping activity into a shorter period of time as the surviving chains adopted the ordering schedules of the companies they had acquired. As a result, Liz Claiborne's distribution centers experienced wide swings in work flow from week to week, making staffing and labor planning more difficult.

During this period many stores also made investments in point-of-sale scanning and more sophisticated replenishment and inventory control systems. This further reduced the amount of time between allocation of their orders to various vendors and possible cancellation of those orders for failure to deliver on time. The stores also made vendors more responsible for retail sell-through via vendor-managed inventory programs, increasing the need for product replenishment after initial shipments.

The culmination of all of these pressures was the internal recognition at Liz Claiborne that modernization of its distribution network was necessary. The company turned to SDI Industries of Pacoima, CA, to improve and modernize its distribution centers.

"The project started with a review of their current



Retailer Investments in point-of-sale scanning and other improvements shortened order delivery deadlines.

facilities,” said Patrick Eidemiller, vice president of consulting services for SDI. “After that, we received a week’s worth of pick data to review and analyze and created a five-year projection for the entire Liz Claiborne apparel distribution network.”

“We did a network analysis, which revealed a capacity constraint as we looked into the future,” said Dave Navarro, director of corporate distribution for Liz Claiborne.

Eidemiller found that Liz Claiborne’s merchandise was stored by collection and style instead of handling type. As a consequence storage density was compromised and aisles containing high demand product would congest and bottleneck during busy periods, limiting merchandise throughput. A single picker was responsible for winding through hundreds of thousands of square feet of distribution center space to fill the order for a single selling

location. Also, due to manual picking errors, carton labeling mistakes and miss-tendered freight, the company was incurring millions of dollars in charge-backs from its retail accounts.

“Individuals were picking each invoice,” said Navarro, “They would get the paper invoice, go to the location, fill the account and then head to another location.”

“During peak times, some sections would be very congested with pickers while other sections had relatively small volumes, added Brian O’Donnell, director of technical operations and planning for the New York-based company.

Initiating Product Movement

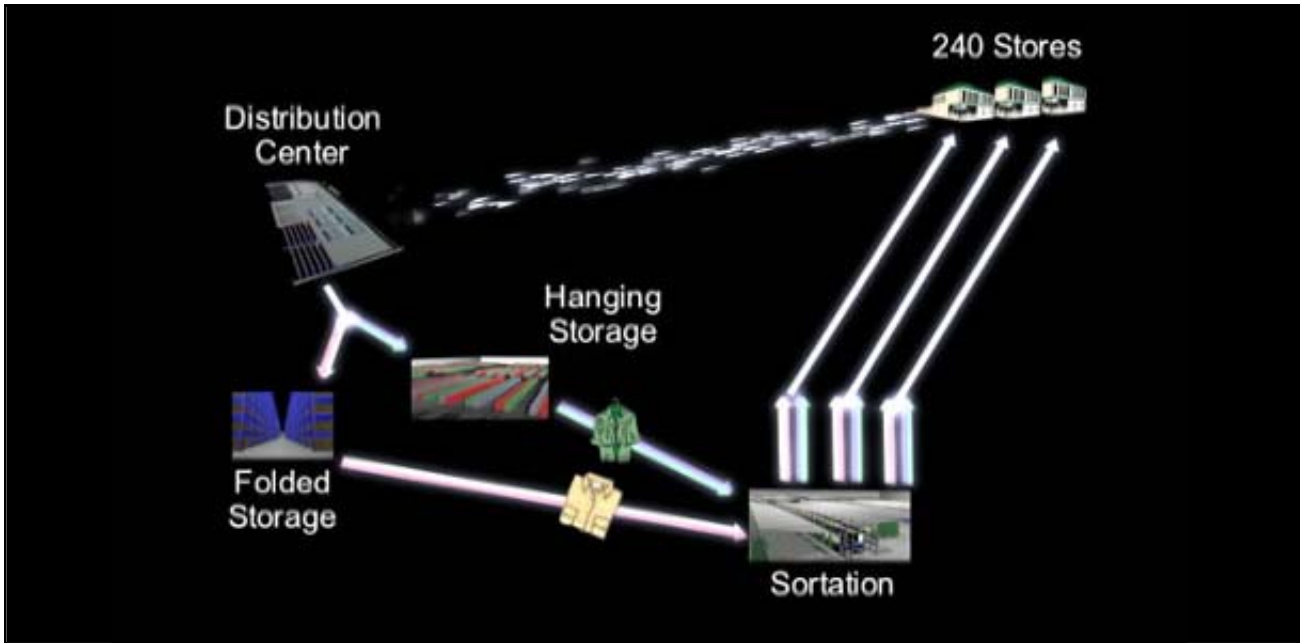
Liz Claiborne and SDI decided to address these inefficiencies through process redesign and automation and dubbed the effort the Product Movement Initiative. The plan was to remodel the company’s HQ1 facility as a prototype distribution center for the future, and then apply that model to its other distribution facilities.

“Once the ultimate processing concept was established, the current processes were completely redefined to maximize facility productivity, capacity and accuracy,” explained Eidemiller. “SDI attacked the space, bottleneck and flow issues inherent in the previous storage techniques by creating dedicated product storage areas for flat and hanging product. Slotting of product was also randomized to allow better workload balancing and product flow.”

Under the new system, the location of different



SDI’s consultants and engineers have helped Liz Claiborne plan and implement its Product Movement Initiative.



Under a “wave” picking scenario, orders are accumulated and then released for picking and sortation in waves, reducing amount of time required to pick orders individually.

pieces of clothing that are part of a style group has been changed. Instead of locating all items in a style group together flat and hanging items are separated to conserve space in the distribution center. Flat inventory was moved into a reserve area and only open cases were stored in forward picking positions.

“This also helps avoid congestion,” said O’Donnell. “The new system spreads the groups across the facility. As a result, the workflow takes place across a larger area.”

To address the issue of excessive paper processing, SDI recommended that Liz Claiborne install a warehouse management system (WMS), providing real time inventory control and allowing for transaction processing through bar code scanning and radio frequency (RF) transmission of data.

Eidemiller said SDI also determined that “wave” processing would best leverage the company’s order picking resources during the highest unit volume periods of the month. This method actually becomes more productive as the demand increases, he explained, because it lowers staffing swings.

In wave processing, orders are grouped into waves of about 240 orders and sent to flat and hang sorter locations. Each individual SKU is batched to a total quantity for the wave, while the individual order detail is downloaded to high-speed flat and hang sorters. SDI found that batch picking by wave would

reduce the number of picking lines by 85 percent. To start the wave, the customer purchase order is dropped from the facility host system to the WMS, which prioritizes it based on work flow and order priority, Navarro explained. The WMS then releases the wave into the facility for picking and sortation. As employees fill their parts of the order they send the merchandise to flat and hang sorters where the products are sorted by customer invoice and dropped into accumulation lanes for shipping preparation.

But many retailers were also demanding floor ready merchandise, which is packed in such a manner that the shipping carton can go directly on to the retailer’s sales floor without being opened or having



Wave processing accumulates orders to be picked from each area, making the order picking process more efficient.



SDI recommended Liz Claiborne separately store its hanging and flat merchandise to facilitate more efficient handling of each type of product.

any additional processes occur to the product. This requires that the product is delivered on the sales hanger, is marked with the correct retailer's ticket, and that the retailer's packing instructions are followed. Many retailers were also requiring that an advanced shipping notice be provided electronically.

"We met this need by creating a system that was flexible enough to meet the packing requirements, accurate through the use of automation, and capable of providing retailer-specific distribution and labeling," said Eidemiller.

SDI also recommended modifications to the distribution center's storage facilities, including conversion of manual packing and invoice-checking areas to storage and sortation staging areas, reconfiguration of rail systems and use of catwalks and mezzanines to optimize available space usage.

From Concept to Design

At completion of the process design phase, SDI translated its design concepts into precise mechani-



Flat or "bombay" sorters sort break-case merchandise by customer destination.



Hanging garments are sorted and sent to assigned order-to-lane destinations.

cal designs, first implemented in Liz Claiborne's 800,000 square foot HQ1 facility and then rolled out to its 1.2 million square foot facility in Mount Pocono, Pa.

At those facilities batch picks are now divided into three types to match the new storage characteristics: hanging, full flat cases and broken (opened) flat cases. After the wave pick, the hanging and opened flat merchandise is inducted on to flat and hanging sorters to sort the merchandise required to fill each order in the wave pick. To the extent possible, full cases of flat merchandise destined for one customer location are kept in tact and are sent directly to the order accumulation area, bypassing sortation.

"Hanging product is stored in dense stock rail," Eidemiller explained. "For flat goods, the total quantity in the wave is automatically reviewed against inventory to maximize full case pulls and minimize break case picking."

"This separation significantly reduces replenishment of forward picking locations," he continued. "Approximately 65 percent of the total flat volume is picked directly from reserve locations, avoiding multiple handlings."

The full case portion of the wave pick is automatically carved out of the batch picking instructions, said Eidemiller. Pick directives are passed to turret truck operators by RF terminals and full case quantities are picked and confirmed in real time through the WMS. Completed full case pallets are placed into a "put away and dispatch" location for marrying with the break case component of the wave.

Flat break case pick orders are passed to break case operators to pick the less-than-full-case quantity required for each item. The break case operator

then marries the full case and break case items together for induction on to the flat sorters.

“At the flat sorter induction station, the unique carton license plate number is scanned, identifying the item contained in the carton,” Eidemiller explained. “The OFS [order fulfillment system] controlling the flat and hang sorters seeks the distribution instructions for the items that have been previously downloaded from the host system.

The flat sorter operators then place one unit in each tray and the item is assigned to a specific order automatically. A secondary validation occurs via an overhead omni scanner after induction. If the bar code on the garment does not match the bar code expected from the carton, the item is dropped to a validation fail location.

Hanging product from the wave pick is inducted concurrently on to a hang sorter, which sorts up to 10,000 single units per hour. All inducted hanging product is also scanned for verification after induction to ensure that the expected item is inducted.

Based upon the order-to-lane assignment previously made, all merchandise for a given order is delivered to a specific pair of locations, one for flat and one for hanging merchandise.

“Flat product is delivered to the corresponding lane,” explained Eidemiller. “Once a carton’s worth of product has been delivered, the dropping of product is suspended and a light is illuminated to

indicate to the operator that the location requires packing. The packer scans the unique outbound carton license plate and the location being packed in order to transfer the product from the sorter location to the outbound carton.”

From Sortation to Shipment

At wave completion, an operator releases the accumulated cartons to the print and apply system where shipping labels are applied indicating each carton’s respective destination.

At the print and apply stations, the unique carton license plates are scanned to determine the order and account information. The first inline print and apply system applies the carton shipping label in the customer’s required format. If the account requires any secondary labeling, an additional printer applicator stands ready. After the completion of labeling, weigh-in-motion scales capture the individual carton weight for the outbound bill of lading. Orders that are marked for special handling and value added services are automatically diverted in the special handling area for customizing.

SDI deliverables at the HQ1 facility included 240-position flat and hang sorters, print and apply equipment, in-line scales, order fulfillment system (OFS) control software, warehouse control systems, stock rail storage systems, installation of five overhead power systems, and a 38,500 square foot catwalk structure for the flat and hang sorters. SDI also provided a 20-lane carton sorter, a carton con-



SDI’s deliverables to Liz Claiborne included carton conveyor systems and two high-speed carton sorters.



Today, Liz Claiborne's Mount Pocono distribution center has an annual capacity in excess of 45 million units.

veyor system from reserve picking to the flat sorter and from the unit sorter to an outbound shipping sorter.

SDI's deliverables at the Mt. Pocono distribution center included three 260-position flat sorters, three 260-position hang sorters, OFS control software, warehouse control systems, four print and apply systems, four in-line scale systems, 11,000 lineal feet of overhead power systems, revisions and modifications to four existing overhead power systems, and a 117,300 square foot storage mezzanine and structure for the flat and hang sorters. SDI also provided a 61-lane high-speed carton sorter, a carton conveyor system from reserve picking to the flat sorters, including real-time direction to flat sorter induction, and a carton conveyor system from the unit sorters to an outbound shipping sorter.

Today, Liz Claiborne's HQ1 distribution center hums with an annual capacity of 15 million units and a daily capacity of more than 125,000 units, said Eidemiller. The company's Mount Pocono distribution center boasts an annual capacity in excess of 45 million flat and hanging units, and a daily capacity of more than 325,000 units on two shifts.

"These two projects represent the most significant investments and improvements to Liz Claiborne's distribution network since the company's inception, said Joe Guidice, vice president of global logistics for the apparel giant. "I am also happy to report that the productivity increases associated with the ROI projected for both projects is right on target."

Eidemiller said productivity in each facility has

increased more than 45 percent from before the retrofit and expansion. Combined, the two facilities serve more than 7000 accounts and 250 company-owned Liz Claiborne stores. Due to the success of these two projects, SDI is now working with Liz Claiborne to modernize the company's distribution center in Westchester, Ohio.

About SDI

SDI Industries, Inc. is a global supplier of materials handling systems and services for retail distribution.

The company, which is celebrating its 25th anniversary, provides consulting and systems integration services to help traditional and direct-to-consumer retailers and manufacturers optimize their merchandise distribution and fulfillment systems. SDI's manufacturing division also provides high-speed unit sortation equipment for retailers, manufacturers and direct-to-consumer fulfillment.

With more than 400 employees and over 300 installations worldwide, SDI is one of the leading authorities in retail distribution systems. For more information, contact Mike Harold, Marketing Manager, SDI Industries, 818-890-6002, ext. 226

An SDI Case Study

