TRUE TALES OF WAREHOUSE EFFICIENCY

White Paper

Automating Warehouse Processes for a Greater Return on Investment

Warehousing processes impact every dimension of your business, from how you maintain cost advantages to the all-important differentiators that cause customers to choose you rather than your competitors

Accellos
Accelerate Your Business

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INCREASING VALUE FOR CUSTOMERS AND SHAREHOLDERS

With costs and competition rising faster than ever, only businesses that find ways to increase value for their customers and shareholders can thrive in today's market. Michael Porter's value chain concept holds that certain activities within a business represent opportunities for adding value to the product or service the business provides. In general, these activities are profit-generators that can be distinguished from the overhead and support functions of commercial distributors and company warehouses.

Value-adding functions often relate directly to the specifics of the individual business. Following are some value-adding functions that Porter highlights as common to most business and should be familiar to anyone who depends on their warehouse as part of their critical operations:

- Inbound logistics
- Outbound Logistics
- Production/operations
- Marketing and sales
- Services

Warehouses are traditionally seen as purely cost-centers and not a potential area for value creation. Yet progressive businesses are turning their warehouses into a significant competitive advantage. Of the value-adding functions listed above, inbound and outbound logistics relate directly to wholesalers, distributors and distribution center operators. In addition, the quality of receiving, storing, and delivering product can affect production, marketing and sales, and services both positively and negatively.

Warehousing practices in the value chain

This white paper addresses the areas that are directly involved with the value-adds and ROI opportunities in automated warehouse processes. Specifically, this paper focuses on how progressive companies can keep mistakes at an acceptable minimum, improve efficiency, maintain compliance, maximize personnel utilization, and maximize inventory investment through effective use of inbound and outbound logistics and warehouse operations.

In a modern, automated warehouse management environment, these activities take place in a smooth, uninterrupted flow. Whether in a distributor or wholesaler model or in a dedicated distribution center serving a dispersed chain of retail stores, the process begins with receipt planning and execution.

THE ROLE OF AUTOMATED WAREHOUSE SOFTWARE

What are the automated processes that the most competitive companies are using in their warehouses? With an advance ship notice provided by the warehouse software, warehouse personnel can prepare for the incoming shipment and delivery before the shipment arrives. Once the shipment arrives at the dock, the

software establishes the staging requirements, logs the product into inventory, checks order accuracy, and directs put-away via bar-coded labels, which is critical for the outbound processes. In the put-away process, the software supports any further needs for barcode labeling and license plates that may simplify and expedite tracking throughout storage and subsequent reshipping. Finally, the warehouse software automatically updates the back office software.

Outbound, the warehouse software processes the order in reverse, receiving an order from the back-office software and issuing a pick order optimized with business logic such as the product location, disposition, ship date, and inventory status. For example, an electrical supply warehouse serving dozens of small contractors might buy in bulk but only ship one or two items to a store at any one time. Pickers may be instructed to box a single order to completion or add items to a tote and pass it down the line where more items will be added before the items are packed and shipped. Conversely, a turf supply warehouse serving high-volume users such as golf courses or developers might receive and ship bulk product in single or multiple pallet loads.

An ideal warehouse management system has the flexibility to provide the vital value-adds regardless of the nature of the business. In the first instance, the value-add is the distributor's ability to buy in bulk, manage the merchandise, absorb the carrying costs, and meter out product as needed. In the second, a critical value-add is the ability to perform the complex logistics for the end users, leaving them free to focus on their core business. Customers would rather compensate the distributor than deal with these matters themselves.

Appropriate methodology is basic to improving efficiency and adding value through process excellence and cost control. An example is the use of a radio frequency scanner that guides pickers with precise instructions as to which aisles hold which products and in which picking order. The warehouse software generates this information and transmits it to the floor, expediting the picking process and preventing wasted motion.

The final phase of the outbound process is freight spend optimization. Warehouse software should tailor solutions to precise shipper and customer requirements such as basic cost, customer preferences, regional and local shipping options, parcel carriers, and dedicated truck fleets. The software then selects the appropriate shipping alternative for each order and automates the production of all relevant documentation.

The Accellos warehouse solution establishes a feature-rich environment to automate, streamline, and verify all of these warehouse processes. From the receiving dock to the shipping dock, the Accellos solution tracks every movement of stock into, within, and out of the warehouse.

A DETAILED HYPOTHETICAL EXAMPLE OF WAREHOUSE ROI

The following case example explores key areas of warehouse operations and illustrates how warehouse automation can quickly create new value in your company.

Our hypothetical company is a wholesale distributor of imported electrical supplies, serving professional contractor and retail markets. It operates a 50,000 square foot warehouse with 12 materials handlers and one manager using both unit and case pick distribution. It maintains B2B e-business relationships with large customers like Lowe's, Home Depot, and Wal-Mart, turning its inventory five times per year.

In implementing the Accellos warehouse solution, our hypothetical company sought to address five factors impacting its success:

1. Mistakes
2. Efficiency: Inbound and Outbound
3. Charge-backs and Compliance
4. Labor management
5. Inventory and waste

1. Avoiding Mistakes

Our hypothetical company estimated that the cost of a single mistake in their warehouse would cost between $75 and $200. You may see some familiar issues of your own in their cost areas:

- Overnight freight on the correct item along with the costs of an additional round of picking, packing, and shipping
- Inbound freight for the returned item and the attendant costs of receiving, inspecting, and put-away
- Lost sales on the returned item in transit, plus the potential write-off of damaged goods
- Labor and inventory management
- Lost customer confidence, which may translate to increased customer service investment and potential concessions on customers' future purchases

The reality is that every order is unique and must be treated as such, whether picked as individual units off the shelf or as a cluster of pallets that cross-docked for near-term reshipping.

Our hypothetical company was running at a respectable 98 percent accuracy. Assuming 100 shipped orders each day in a work year of 220 days, a low estimate of $100 per error yielded an annual cost of $44,000. Due to extended automation capabilities, the elimination of paper processes, and enforced error interception, the Accellos warehouse solution was able to bring the accuracy rate to 99.5 percent, for an annual savings of $33,000.

2. Improving Efficiency

Picking is labor-intensive, with some 60 percent of our hypothetical company's warehouse workforce involved in moving about the facility to locate the product and put it through the shipping process. Thus, receiving and picking activities are part of a continuum, even though they may be separated in time.

Inventory accuracy is paramount to both receiving and picking. Oftentimes during receiving, SKUs arrive unlabeled or vendors mix items from multiple purchase orders into a single shipment or consolidate them on a single pallet. Receiving via paper purchase orders is time-consuming and error-prone; however, automating the receiving process accommodates containers and mixed pallets and can result in efficiency gains of 10 percent or more. With three of our hypothetical company's warehouse employees assigned to receiving, each averaging $35,000 in payroll annually, realizing an annual efficiency savings of $10,500.

Automating the picking process also increases efficiency. When arriving products are accurately logged and stored, with all of the information conveniently accessible in electronic files, greater accuracy and speed is assured. Paper pick tickets are eliminated through the use of directed picking, with instructions communicated wirelessly from the warehouse system to six $35,000 warehouse personnel. The result: a 15 percent efficiency increase, or a net annual gain of $31,500.

3. Dealing with Charge-backs and Penalties

Trading partner relationships with large companies like Home Depot, Lowe's, and Wal-Mart are major sources of business for our hypothetical company, but they also present a set of challenges in terms of label compliance, electronic document exchange compliance, and inventory accuracy.

The upside is high volume business. The downside can be threefold:

- Significant penalties and charge-backs
- Refused shipments and returned merchandise, with the attendant costs
- Lowered supplier ratings and lost business

Our hypothetical company was averaging $1,000 per month in charge-backs, penalties, and fines from mislabeling. Couple this with five shipments each month that were refused and returned because of mislabeling at a cost of $100 each, the resulting savings is $1,500 per month or $18,000 per year.

The greater accuracy of Accellos' continuously updated inventory and automated pick/pack/ship processes assures that goods promised will be shipped. Automated label production assures that each carton carries the correct UCC 128 label, and automated generation and transmission of the Advance Ship Notice (856) and Outbound Invoice (810) forms provides instant, precise information to the customer.

These assurances improved compliance by 90 percent, for a net annual savings of $16,200, while at the same time fortifying business relationships with critically important trading partners.

4. Optimizing Labor Management

Warehouse labor is both necessary and expensive, and is also inefficient if utilized solely to execute manual processes including:

- Order checking: validating picked orders; annotating pick tickets
- ERP system updates: receipts, picking, shipping, adjustments
- EDI preparation: rip-and-read inbound documents; manual creation of EDI documents and UCC labels
- Annual inventory counts: physical count; updating balances

In hypothetical warehouse's manual operating environment, these processes normally involved six employees, again at the average annual salary of $35,000. The annual inventory count projected an additional $10,000 in overtime and temporary wages.

Using the Accellos warehousing solution, with automated order checking, reduced data entry due to automated data collection via barcode, automated preparation of EDI documents, and the elimination of annual inventory counting through continuous, automatic update as stock is picked, realizing a net annual savings of $129,350.

5. Inventory and Waste Reduction

Manual management of inventory is costly in several ways. Companies often carry excess inventory because they lack confidence in their records of stock on hand. This leads to over-ordering and write-offs, particularly when never-used product exceeds its expiration date. Further waste can accrue from poor handling of returned goods: inspecting and restocking, returns to manufacturers, and scraps and write-offs.

Our hypothetical company reduced this waste by automating inventory management, updating stock records as stock is picked and, in turn, replenishing stock more precisely and reducing its inventory by three-to-five percent. In addition, a number of associated costs, such as cost of money, cost of insurance, and taxes are reduced.

Inventory and waste reductions through more accurate records and better processes yield an annual reduction of four percent, or $13,500 in annual savings.

RETURN ON INVESTMENT ANALYSIS

The following chart summarizes the annual savings for our hypothetical company described above.

Cost Reduction	Savings
Reduction in mistakes	33,000
Improved efficiency	42,000
Improved compliance	16,200
Improved labor utilization	129,350
Reduced inventory carrying costs	13,500
Total Savings	**234,050**

In the simplest of terms, this level of savings provides a return on the investment in only eight months. From that point on, the warehouse system makes a continuous contribution to corporate profitability throughout its life.

THE TRUE TALES

Let's leave the world of the hypothetical for the real world. Below are 5 true stories companies that improved their operations, increased their productivity, and achieved better customer satisfaction.

Clipper Distributing Company

Clipper Distributing Company is a privately-owned animal pharmaceuticals distributor based in St. Joseph, Missouri, experiencing double-digit annual growth both in revenue and in units sold virtually since start-up. Its small-animal focus accounts for 70-80 percent of sales, most of the balance in bovine and equine products such as antibiotics and fluid therapy products. Its product mix is strongly generic with over 1,400 products but also includes branded products from manufacturers such as Bausch & Lomb, Pfizer Animal Health and Abbott Laboratories.

The Clipper staff comprises 21 employees, 11 of whom are in the warehouse – a four-year-old, 37,000-square foot facility that is divided into three zones distinguished by their storage characteristics and picking requirements: pallet, case and carousel. The warehouse also has a refrigerated area, a flammable liquid storage room and a secure space for narcotics and other controlled substances. The company serves about 10 distributors with single and as many as 16 different shipping points. Deliveries are broken out at these points and forwarded to smaller outlets for direct sale to customers, most often veterinarians.

According to Clipper CFO Brandon McKibben, the Accellos warehouse solution installed is basic but open, with additional opportunities that will come into play as Clipper's business continues to grow in volume and complexity. And despite its power and flexibility, the system is amazingly easy to learn, he says.

"We are looking towards adding a second shift and this will be quite important," he says. "Looking back we realize that under our old business model, there was a six month learning curve. After installing the Accellos warehouse solution, we took a temporary worker 'off-the-street,' gave him a 10-minute orientation on using the scanning device, and by the end of the day he was picking more lines per hour than our most senior employees were doing last year."

At least half of the paper-based processes have been eliminated and those retained have been significantly improved, for, for example:

An aging inbound inventory tracking system has been replaced with a new barcode process, greatly reducing time spent later in the process from put-away, to picking and shipping.

Pickers use wireless devices to scan the barcodes as the Accellos system routes them through a blind pick process, accelerating the pick and eliminating human error.

The new pack slip produced by the Accellos software adds a carton content label with a description of the contents of every pallet. Pre-Accellos, it did not identify the pallet or indicate how many pallets were in a delivery.

Integrating a carousel system brought the ability to pick eaches and low volume cases quickly, where previously these were picked directly from pallet racks.

The ultimate proof, of course is in the production and it did not take long for the value to emerge. The carton figure for January 2008 was 54,000; for 2009, it was 47,000, but McKibben points out that in the January implementation, about a week of shipping was lost; that for a full month, the total would probably have shown a 2,000-unit increase. Ship rates tell the story more clearly:

- Lines: February 2008, 93/hr; February 2009, 121/hr
- Pounds: February 2008, 3,100/hr; February 2009, 3,622
- Cartons: February 2008, 280/hr; February 2009, 313/hr.

"It was gratifying to be able to identify such significant results so quickly," McKibben says. "The entire process has exceeded expectations, from the excellent implementation team that Accellos recommended to the functionality of the system and the information we now derive for reporting purposes. Talking to other Accellos warehouse solution users gave us the confidence to move forward and we now feel able to grow and expand without having to add more people and processes."

Colorbök Inc.

Management at the Ann Arbor, Michigan scrapbook, craft and hobby products company Colorbök, Inc. were at a critical decision point in early 2008 as they contemplated the increasing costs and complexity of the business. The company designs and specifies products in Michigan for manufacture by various sources in China and import to the U.S.

Distribution was increasingly costly and management had undertaken a review to determine just what their distribution strategy ought to be: continue with its own distribution operations or outsource it. Colorbök's

strength is its creativity and design process, not in the distribution and warehousing of goods and one thing was apparent: despite that its distribution center in Rancho Cucamonga, California was less than three years old, it was top-heavy with both process and personnel.

From go-live in October 2008, the impact of the new warehouse management software was swift. No impact was recorded in October, but strong positive signals emerged in November and December showed hard savings of almost $21,000. Within a few weeks after the first realized savings, Colorbök President and CEO Chuck McGonigle shared monthly tracking results with the board of directors: "On average we are enjoying a $25,000 monthly reduction in costs," he stated. "In 2007 CALRC (the California facility) head-count peaked at 115 people. Today we have 48 hourly workers in CALRC and Kit Christensen, Director of Distribution, has been challenged this year not to increase above 60 people during peak shipping months."

Annual inventory normally took seven- to eight days, with costs further amplified by delayed or lost revenue since there could be no product shipments during the inventory period. Because Accellos automatically maintains a running inventory, periodic cycle counts have been eliminated.

According to Christensen, the paperless, automated environment enabled him and his staff to complete the December 2009 annual inventory of more than 800,000 cases in only one and one-half days at a labor cost of $15,745.80, achieving 98.978 percent accuracy. In contrast, the 2006 physical inventory took five days, cost $60,276.76 in labor and achieved a final accuracy of 96 percent.

On a total 2009 inventory valuation of $6,157,684, there was a negative variance of only $1,345.00.

Calculations for calendar 2009 indicated total savings of nearly $435,000 for a 132.2 percent return on investment *in a single year*.

"This has been a hugely successful undertaking," IT Director Scott Genereaux says, "and it is one that will continue to support profitability for the company for many years to come."

Hampton Products

Whether aware of it or not, browsers and shoppers in retail outlets like Ace Hardware, Home Depot, Lowe's, Sears and Wal-Mart might encounter merchandise developed and marketed by Hampton Products International Corporation around almost any corner. Founded by Dale Hampton in 1973 to distribute automotive security hardware, the company is now international in scope, manufacturing and sourcing product in Asia and distributing more than 10,000 SKUs under six brands in 11 retail categories throughout North America and in several countries abroad.

Domestically, it is the second largest manufacturer of padlocks and it holds substantial market positions in other categories as well including, among others, door hardware, security lighting, builders' hardware, bath hardware and timers.

The impact of the new warehouse management software was on display quickly, CIO Brian Millsap says. "During the days following implementation, we handled more orders than any day in company history," he says. "We didn't expect this but we worked through it, doing more with the same amount of staff.

Among other things achieved or in work:

- Printing 85 percent less paper in its shipping processes
- Continuing review/modification of warehouse layout

- Continuing analysis/modification of procedures
- Continuing evaluation of workflow patterns for speed, efficiency
- Opening and closing order processes faster
- Much more up-front order allocation

Accelerating the movement to storage and out the door.

"Real-time capture of information allows us to spot and identify problems more quickly and allows us to track picks accurately as well as to obtain better metrics across our operations," Millsap says. "Any-time cycle counting means that we always have accurate, up-to-date status of any and all of the product in the warehouse."

As the company gathers experience working with the new system, new opportunities emerge, one of which will be the ability to define new performance standards for the warehouse operations: factors such as cost per unit (container, case, each, etc.), labor costs, labor productivity and efficiency, all based on precise metrics captured in the software.

Porteous Fastener Company

Founded in the mid-1960s near downtown Los Angeles, Porteous Fastener Company (PFC) has watched its supply sources shift from the United States to Japan and on to Taiwan and China. Its physical presence has expanded from the original installation now to comprise six regional distribution centers (RDCs) and nine branches, including one in Vancouver, B.C., Canada. Company headquarters and a co-located warehouse are in Carson just a few freeway miles north from the Port of Los Angeles.

Like those of its competitors, Porteous Fastener Company's products – primarily nuts, bolts, screws, etc. – have become commodities. Since most of its sales commence with an inquiry that may have also been submitted to other suppliers, absolute inventory currency is vital to assure that when an order is taken, the company can assure delivery. If product isn't in stock, PFC usually isn't in the picture.

Their inventory is complicated. Some 5,000 containers arrive annually, with the software managing movement of the goods into, out of and between its distribution centers and warehouses as well as shipments to its customers. The 40,000 SKUs the company maintains in inventory range from long-length threaded rod for construction projects to nuts and bolts in a variety of types, sizes and plating. It delivers in quantities ranging from multiple pallets and skids to clam shell, Quick Drawer and boxed, plastic-bagged units – sometimes custom-labeled to buyer specifications. Most of the merchandise is boxed and labeled at the manufacturing sites, but certain product is repackaged to order by a dedicated department located in the Carson warehouse.

The results of their warehouse automation were dramatic:

- Pick time cut by 15-20%
- Logistics operations at all locations accommodated with single shift
- Instant access to company-wide inventory from all warehouses
- Logistics operations now virtually paperless
- Implemented velocity-based zoning in warehouses
- Seamless integration with existing ERP system

Implemented handheld computers and scanners to automate input, display and output of data

"We now accommodate all of our logistics operations at all locations with a single shift, which has enabled us to reduce workforce by about 25 percent," says director of operations Bret Swan. "Customers are ordering as often, sometimes more frequently, but in smaller quantities – for example, multiple boxes instead of full pallets. Nevertheless, streamlined warehouse layout and use of directed picking has cut pick times by 15 to 20 percent because pickers never go to an empty bin. Besides effecting economies, this has had significant impact on customer service, which in turn impacts sales."

According to Vice President and CIO Tom White, the system has been a hit with all concerned parties: "For the CFO, it's a matter of price and profitability; for the warehouses, it's the wealth of features and functionality; for the I.T. staff, it's the flexibility and power that keeps operations running smoothly and the range of capability that allows us to respond to emerging needs as they occur."

Currently, PFC is also using the software to modify the zoning in its warehouses so that highest demand product is closest to the shipping doors, with other product placed in descending order of demand. According to Swan, 50 percent of sales derive from products that will reside in the high volume zones.

ABOUT ACCELLOS

Accellos is a global provider of logistics, warehouse, 3PL, transportation and mobile fleet management solutions. Accellos addresses the supply chain management and execution market with warehouse management systems for multiple environments; transportation management solutions; and in-field mobile resource management solutions. Accellos' powerful supply-chain execution solutions are easy to customize and implement, providing our customers with more innovation for less investment while producing significant savings and greater profitability. Through a culture of innovation, Accellos strikes the perfect balance of customer satisfaction, employee fulfillment and shareholder value, delivering greater profitability and rapid return on investment for our customers and accelerated logistics and warehousing services for the clients they serve.

For more information, email info@accellos.com or visit www.accellos.com.