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## How to Take Your Warehouse Wireless

– Thomas Wailgum, CIO

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For all businesses, growth is a good thing. More sales, more customers, more demand, more revenue. But growth has a funny way of exposing inefficiencies by shining a harsh light on wasteful, entrenched business practices, loosely stitched together by siloed IT systems that lead to high operational costs and act as roadblocks to real change.

At Dorfman Pacific, a mid-market manufacturer and distributor of headwear and handbags, the business had always been about serving the Mom-and-Pop stores that had constituted the company's customer base since its inception in 1921. But although the company had kept current with fashion, its warehouse processes had scarcely changed during 86 years in the business. Despite technology's march, its warehouse processes remained paper-based and relied on the workers' tacit knowledge of the warehouse and each customer's needs.

But in the late 1980s and on into the '90s, a new sales and distribution channel created room for growth: Dorfman Pacific began selling to the big-box retailers such as Wal-Mart, which craved more of the 25,000 items that the company sold. Dorfman Pacific still sold to the small and midsize retailers, but the split between the two was now about half and half.

As the company sought to expand during this period, its modus operandi showed cracks: The paper-based order-picking processes that served Dorfman's 100,000-square-foot warehouse were too inefficient; the warehouse itself was too small; the use of a temporary workforce and loads of overtime to meet demand peaks meant it incurred huge operational costs; and siloed IT systems offered little computing assistance and inventory visibility. In short, the company's growth had spotlighted the inefficiencies inherent in the way things had always been done.

"In the environment we had, it was a challenge to actually do a good job," says Mark Dulle, the IT services director for Dorfman Pacific, who came on board in 2003. "It was stressful and very difficult to maintain any level of quality and get it right."

Executives at Dorfman Pacific could see the future and knew they faced a challenge in expanding operations using the existing warehouse and technologies. So starting in 2001, top management, most notably CEO Douglass Highsmith, began to push for a big technology-driven change to business as usual. "I don't want to fight technology. I want to embrace it," Highsmith says. "We've got to constantly improve the technology applications of our company." A total revamp of Dorfman's operations, including a complete IT overhaul inside the warehouse, was called for. Paper was out. Wireless was in.

What follows is the story of how one company upended every square foot of its warehouse operations—its interior layout, day-to-day shipping and receiving practices, the equipment workers used and the IT systems enabling it all—and reduced its warehouse labor costs by 30 percent, saving more than \$250,000 a year and vanquishing many inefficiencies that had plagued its operations.

But the road to success wasn't without bumps. "There are things we didn't do right," Dulle admits. For one, he says, the project team pushed too far, too fast on the wireless implementation. As a result, the company didn't meet the initial March 2005 go-live date, which negated the first return on its investment.

What's most notable (and applicable for other CIOs), however, is what Dorfman Pacific did do right: The business side took full responsibility for the project's success; a cross-functional project team determined the overall plan, chose the appropriate technology and managed workers' expectations throughout; and a non-IT sponsor shepherded the entire project. IT was there at every turn but "this was not an IT project. No way," Dulle emphasizes. "This was strictly a business project." Which is why, he believes, it was such a success. Here's how the company did it.

## Examine Existing Processes

Dorfman Pacific's steady growth in the '80s and '90s bolstered its status as one of the world's largest headwear and handbag companies. (You wouldn't know it but you've probably seen their hats, which are worn by celebrities and featured in *People* and *InStyle*.)

Then, in the late '90s, Highsmith pushed his company to grow even more. Dorfman Pacific took aim at the growing women's headwear market and what Highsmith calls the resort business—straw hats and other protective headgear worn in summer or at tropical vacation destinations. The company also pursued private-label and specialty work for Orvis and others. Dorfman Pacific had contracted out some manufacturing to cheaper countries in Asia; now it accelerated the process. It still serviced its smaller customers,

but now it received orders from much bigger companies that wanted thousands of different items and box types.

To accommodate demand, the company expanded over the years to a 275,000-square-foot warehouse. But the bigger warehouse "wasn't set up for the growth we had had," says Dulle. And neither were its processes. Warehouse personnel received a paper order or "pick ticket" from a supervisor for, say, a Scala Western hat, drove a forklift to the bin where they thought it was located and manually picked the boxes off the rack. They brought the items to the packing area, put them in a box, stuck a label on the box and put it on a truck. However, merchandise bins were manually labeled and not easy to read. Workers knew the box types and had a sense of what they held but weren't always right since items were sometimes mixed together. The route that each worker chose to accomplish his pick work was up to him.

"Picking by order just wasn't going to cut it anymore," Dulle says, "but the worst part was that the warehouse was not really set up for anything other than picking processes."

As the company grew, so did its problems with the old system. Inefficiency reigned. Special orders could wreak havoc, and Dulle says the ERP system, installed by his predecessor, wasn't much help due to integration challenges with the rest of the systems. When the peak seasons hit in spring and fall, Dorfman Pacific had to hire temporary workers to get the goods out the door, which cost it around \$250,000 annually. "We used to have people working on Saturdays and Sundays, and tons of overtime," Dulle recalls. "That's where a lot of the costs came in."

Dorfman Pacific's warehouse problems are not uncommon in the manufacturing and packaged goods industry. According to Steve Mulaik, director of logistics consultancy The Progress Group, warehouses can get "out of control" because of a reliance on seasonal and temporary labor, high employee turnover or too many inexperienced pickers. In his research, he figures that a novice picker who simply follows a paper pick list can end up with a "pick tour" almost 20 percent longer than one who uses a system that employs wireless technologies, intelligent routing software and handheld devices—the kind of system that Dorfman Pacific thought it needed.

## **Put Everything on the Table**

The impetus for Dorfman Pacific's warehouse makeover came from the top. Highsmith had seen wirelessly enabled warehouse management systems and knew he needed something similar to cut labor costs and enable his company's long-term success. "You could see how much more efficient you could be with the technology," he says. His

vision, along with the guidance of the former vice president of operations and Dulle, provided the spark.

An outside consultant who reported in to Dulle and was embedded with the management team acted as the project manager. The project team consisted of managers from the distribution center, purchasing, customer service and sales. IT was responsible for hardware selection, hardware and software installation, and providing an administrator for the new warehouse management system application.

Highsmith's vision soon boiled down to a simple question: What's the most efficient way to pick product with the fewest errors and the least amount of people? To find the answer, the project team analyzed how the 25,000 SKUs flowed through the warehouse and how the workers fulfilled each order. The team also measured the dimensions and weights of each SKU using a cube-a-scan, which records a box's dimensions. They examined the size of every bin and rack, and identified whether products were stored where they were supposed to be.

Everything was on the table. "We decided that if we're going to disrupt the warehouse, we're going to do it all at once and get it done," Dulle says. "We felt that that was the only way to go."

Dorfman Pacific execs also wanted to make certain that the wireless component, a critical piece of the overhaul, would work in their warehouse. They hired Texas Bar Code Systems to conduct a radio frequency study to see if the wireless signals would play nice inside the facility's concrete walls, steel doors and metal racks, and to identify the best wireless access points.

The IT infrastructure gluing this all together also needed a makeover. Dulle had to revamp the ERP system he inherited as well as select, install and integrate a new warehouse management system that had wireless capabilities and could sift through the company's warehouse data and shipping information. He also ripped out the old networking, cables and switches, and upgraded to the latest and fastest network gear and fiber.

After hiring Symbol Technologies for the wireless networking equipment, HighJump Software for the warehouse management system and Zebra Technologies for the bar-coding equipment, and selecting an integrator (RedLine Solutions), Dorfman Pacific could see its future warehouse. The backbone would be a wireless local area network (with 802.11 connectivity) that utilized 15 wireless access points (APs) spread out over the facility that could simultaneously run the 802.11a/b/g bands on each AP. Warehouse staff would have 40 mobile and fixed-mounted computers on the forklifts at their

disposal. The devices were kept simple: "[It was] all F1, F2, press this key, press this button—no mouse and no pen," Dulle says.

In the back office, IT was set to roll out an upgraded ERP suite and the new warehouse management system that would direct the picking, packing and shipping processes using specialized logistics software. Data from the software would appear on the forklift's mobile device and tell a picker where to go, what to grab and where to bring it in the most efficient way. Paper would be a thing of the past.

## Learn from Mistakes

In late 2004, executives and the project team had to sell the change and set the expectations for the March 2005 go-live date for the folks on the floor. Executives held group meetings and one-on-ones, formed focus groups and selected project leads to get the message out. "We said, we're going to make your lives different," Dulle recalls. "We're going to make it harder to make mistakes. We're going to make it more efficient. We're going to help you to do a better job." Everyone got on board.

In the race to meet the March deadline, as the pressure to deliver the new system pushed everyone to work nights and weekends, and as the opportunity to deliver the first reduction in temporary labor costs loomed, Dorfman Pacific hit the brakes. Despite everyone's efforts, the new system and processes just weren't ready. "We pushed this very, very fast. We were trying to drive operational costs down, and we let that color our judgment," says Dulle.

The go-live date moved to July. It was a costly decision. Dorfman employed the largest amount of temporary labor in March and April, and executives were counting on this first reduction in costs. However, the extra time allowed employees to work through lingering issues with the IT systems and the new shipping and inventory flows. For example, the warehouse management system required a different floor configuration and new ways to pick, pack and ship products. It also placed more emphasis on the process of expediting the merchandise no matter how many other products were a part of the order and were, most likely, going to the same customer.

For bigger retailers, receiving 20 boxes instead of five wasn't a problem. But for the smaller stores, receiving 20 boxes instead of the usual five made a huge difference because of the accumulated freight charges. The delay let Dulle and the team reconfigure the software to fix the problem and keep smaller customers happy.

CEO Highsmith says the decision to delay was based on how the premature rollout might have a negative effect on Dorfman Pacific's customer base so close to peak season. "The

technology embrace has to have a positive impact on customers. If it makes it more efficient here but has a negative impact on the customer, whatever gains you make you lose on the other end."

After the delay, Dulle says, Dorfman Pacific was "mentally ready" for the new operations and procedures. Each warehouse bin now had only one product type in it, and all bins had bar code labels so wireless scanning devices could track inventory. The warehouse was divided into new zones, which sped up the shipping process for orders that didn't need any extra handling.

Instead of bludgeoning its way to the finish line, Dorfman Pacific was able to pull back when other companies might have pressed on. "We were able to stop and catch our breath, and work through the issues and flows," Dulle says.

## **Enjoy the Fruits of Your Labor**

Almost two years later, the vision of a wireless warehouse is a reality. Workers now take advantage of wireless networking, handhelds and scanners, bar codes, and streamlined shipping and receiving procedures. All product inventory is seamlessly tracked and there's not much paper floating around the warehouse. "As far as paper to manage inventory, we don't have it," Dulle says.

He won't say what the total project cost but notes the company is looking out three years for the return on its investment. Meanwhile, three peak seasons have come and gone using the new system, and executives are happy with the results. Dorfman Pacific now handles approximately double the number of orders during its peak periods and has sliced labour costs by nearly 30 percent in the warehouse.

"We had a significant increase in [shipments] during the last peak season, and we handled it with less people," Dulle says. "We can take market share from competitors because we can deliver faster now."

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Thomas Wailgum joined *CIO* magazine in 1996. He has written investigative articles and profiles of CIOs, CEOs and other top executives at [UPS](#), [Toyota](#), [ESPN](#), [Wal-Mart](#), [IBM](#), [HP](#), [United Technologies](#), the [New York City Police Department](#) and numerous other organizations. He has written extensively about enterprise computing systems—such as [enterprise resource planning](#), [customer relationship management](#), and [supply chain management](#)—as well as [data management](#), [telecommunications](#), and [staffing challenges](#). Thomas has become enamored with mobile technologies (including handhelds and radio frequency identification, or RFID, systems) as well as wireless networking and security. Check out his blog, [Fully Mobile](#), for a look at the hype, headaches and hurrahs from the mobile and wireless world.