

SAP Customer Success Story Consumer Products – Recreational



“Overall, we are building a highly scalable, RFID-based system that can meet the needs of Pacific and its customers, as well as the demands of a constantly changing marketplace.”

Ed Matthews, Director of IS, Pacific Cycle

AT A GLANCE

Summary

When its largest customer – Wal-Mart – announced a requirement for suppliers to implement radio frequency identification (RFID), Pacific Cycle Inc. turned the challenge into an opportunity. Using a totally integrated SAP® solution-based system, the company not only met the Wal-Mart requirements but also improved its entire supply chain.

Web Site

www.pacific-cycle.com

Key Challenges

- Use RFID to add value to company's warehouse and delivery operations
- Leverage RFID data to increase inventory status and tracking accuracy at retail customer locations

Project Objectives

- Meet Wal-Mart's RFID requirements
- Automate warehouse processes
- Create a scalable platform to drive future value processes using RFID

Solutions and Services

- SAP RFID technology; the SAP Auto-ID Infrastructure, SAP NetWeaver® Exchange Infrastructure, and SAP NetWeaver Business Intelligence components of the SAP NetWeaver platform
- WebSAPConsole software
- PEAK Automation Controller

Why SAP Solution

- SAP's long-term commitment to the future development of RFID solutions
- Flexibility of SAP Auto-ID Infrastructure to configure physical RFID process into application

- Ability to incorporate RFID into existing SAP infrastructure and business processes
- Ability to lower total cost of ownership by leveraging existing skill set

Implementation Highlights

- Tied hardware seamlessly to physical inventory and its movements to automatically update transactions in company's enterprise systems
- Enabled transactions by connecting directly to mobile devices from SAP Auto-ID Infrastructure through WebSAPConsole

Key Benefits

- Ability to meet Wal-Mart commitment while implementing an SAP platform to leverage RFID technology for Pacific Cycle and its other retail customers
- Elimination of manual input of shipping and delivery information
- RFID reporting increased visibility of inventory movement at both Pacific Cycle and retail customer locations

Implementation Partners

- SAP Consulting
- PEAK Technologies

Existing Environment

- SAP R/3® software, now available in the mySAP™ ERP solution
- SAP for Consumer Products solutions

Database

Microsoft SQL Server

Hardware

Dell servers, Zebra RFID printer, Symbol mobile device, Symbol/Matrices reader

Operating System

Microsoft Windows NT

PACIFIC CYCLE

North America's Largest Bicycle Supplier Works with SAP to Create Integrated Distribution Infrastructure and Meet the RFID Challenge

In 2004, when Wal-Mart Stores issued the now famous letter requiring its top 100 suppliers to put radio frequency identification (RFID) tags on shipping crates and pallets by January 1, 2005, the lives of a lot of IT managers changed. Watching this development, Ed Matthews, director of IS at Pacific Cycle Inc. – a Dorel Industries Inc. company and one of Wal-Mart's top 100 suppliers – saw an opportunity. Here was a chance not only to meet the Wal-Mart requirements but also to adopt an emerging technology early in the game, drive positive change in the way Pacific Cycle did business, and position his company's IT infrastructure well for the future. Matthews and his team at Pacific Cycle embraced the Wal-Mart RFID initiative.

“Not only is Pacific Cycle a Wal-Mart supplier but it is also one of the fastest growing branded consumer product companies in the United States,” he says. “We realized that complying with the Wal-Mart mandate was an opportunity to create an infrastructure that could bring major business benefits to the company. The mandate also brought the shortcomings of our existing distribution system into sharp focus,” he adds.

Pacific Cycle, headquartered in Madison, Wis., designs, markets, and distributes famous-brand bicycles such as Schwinn, Mongoose, and GT, as well as other recreational products. Only four years ago the company built all of its bikes in the United States. Various high-quality Asian factories now provide manufacturing, and Pacific Cycle has shifted its emphasis to optimizing its supply chain, distribution, and customer service.

Challenges: Poor Accuracy Rate, Unleveraged Data

Prior to the SAP® RFID implementation, Pacific Cycle was already piloting RFID in “slap and ship” mode. RFID labels were printed and attached to the merchandise. There were some problems, however. “Our accuracy was about 60%, which was pretty terrible,” recalls Matthews. “Plus, we weren’t doing anything with the data we did get – the information went into a database and just sat there.” According to Matthews, there was no feedback to the company’s existing SAP R/3® software and, as a result, no analysis of the data Pacific Cycle could use to improve its supply chain operations. (SAP R/3 functionality is now available in the mySAP™ ERP solution.)

New SAP Solutions to the Rescue

Pacific Cycle had implemented a simplified version of RFID for one of its warehouses. But now they wanted to expand this initial simple RFID pilot and scale to a second warehouse by the end of the year – but their technology at the time would not support that goal.

That’s where new technology and SAP solutions came in. Help was on the way in the form of better hardware – new RFID reader and tag technology that boosted reading accuracy to 90% or better – and new software solutions from SAP.

Benefits Beyond Meeting the Wal-Mart Mandate

While the initial focus was primarily on meeting the Wal-Mart RFID requirements, Matthews also wanted to further leverage the data being gathered by the RFID readers. “We wanted to make better use of the additional RFID data that had become available because of the RFID hardware and software improvements,” he says. The company realized that SAP solutions could play a key role in realizing that goal.

One key challenge for Pacific Cycle was to take the potentially useful raw data that RFID was producing and transform it into actionable business information in the company’s enterprise systems. For example, goods movement data that RFID collects in the warehouse – including electronic product code (EPC) data – could be entered in the enterprise system and used to help automate shipping and receiving procedures. At that point, as Matthews points out, the data would no longer be just “sitting there.”

Another challenge Pacific Cycle faced was to get maximum value from the company’s investment in RFID processes by implementing the solution across multiple locations. “We decided to deploy an integrated infrastructure that was significantly more useful than the basic slap and ship system that met Wal-Mart’s core requirements,” he says. “Our goal was to tie all the RFID data back to the SAP R/3 software so we could use the information to improve our shipping and receiving operations in relation to all our retail customers.” He saw that they too could use the RFID functionality to help automate their own shipping and receiving

“We were able to create an end-to-end, integrated architecture that makes total use of SAP-centric solutions . . .”

Ed Matthews, Director of IS, Pacific Cycle

procedures. An additional payoff for Pacific Cycle would be that the data coming back from the customer locations could be analyzed to improve Pacific Cycle’s entire supply chain.

Matthews also had his eye on the ultimate goal: eventually extending the RFID technology to the company’s manufacturing plant in China, where products could be tagged prior to leaving the factory. This would provide three additional benefits. It would reduce the overall RFID handling costs, add accuracy to shipping data, and allow better tracking of goods coming from Asia.

Deploying an Integrated Infrastructure from SAP

Pacific Cycle looked at a number of alternative solutions from RFID vendors, warehouse management companies, and from SAP. “We decided to stay with SAP for a number of reasons,” Matthews says. “First and foremost, we knew SAP was in it for the long haul – the company was committed to the future development of RFID. We needed the continuity and constant improvements in technology that only a world-class company like SAP can provide. In addition, we were familiar with SAP products and had built a considerable knowledge base around SAP technology.”

According to Matthews, another major factor was the incorporation of SAP RFID technology and its components into the SAP NetWeaver® platform. These include the SAP NetWeaver Application Server component upon which SAP Auto-ID Infrastructure was developed; the SAP NetWeaver Exchange Infrastructure (SAP NetWeaver XI) component for integrating business processes; the SAP NetWeaver Business Intelligence (SAP NetWeaver BI) component for reporting and analysis; and WebSAPConsole software, which lets Pacific Cycle's warehouse operators interact conveniently with the system.

Heart of the System: SAP Auto-ID Infrastructure

SAP RFID technology includes a preconfigured SAP Auto-ID Infrastructure component, which is, according to Matthews, effectively the heart of the Pacific Cycle solution. The SAP Auto-ID Infrastructure component senses and controls the automated RFID signals in real time and is able to handle the vast amounts of data generated by scanning millions of RFID and other automatic identification items.

SAP Auto-ID Infrastructure controls the RFID process while simultaneously converting the raw RFID data into business information the company can act on. It also provides embedded and preconfigured data warehousing to report read rates and inventory movement metrics both internally and externally across the supply chain – as well as a data exchange infrastructure to translate and route actionable information into back-end systems and event management functions to record and track events and identify exceptions. With SAP Auto-ID Infrastructure, Matthews says the company felt confident it could meet current market needs and be ready to tackle any automatic identification requirements that might occur in the future.

“An SAP solution-based platform,” says Matthews, “would help us to build an RFID platform that would scale – allowing us to expand our internal use of RFID and add other retail customers at the same time.”

Matthews says the IT infrastructure for the system is very straightforward, consisting of Dell servers running Microsoft Windows NT and Microsoft SQL Server. Dedicated servers host SAP Auto-ID Infrastructure, SAP NetWeaver XI, and SAP NetWeaver

Application Server. PEAK Technologies – an SAP partner, expert in RFID technology, and the RFID implementation partner for Pacific Cycle – provided the PEAK Automation Controller software, Symbol Technologies' RFID tags, and the Zebra printers.

“The SAP RFID system is hardware agnostic,” says Matthews. “The PEAK Automation Controller [software] sitting in front of SAP Auto-ID Infrastructure has the flexibility to adapt to the constant changes in RFID technology.” According to Matthews, RFID readers are rapidly evolving and the manufacturers are constantly changing the software inside the boxes. But, he says, PEAK Automation Controller is flexible enough to accommodate these changes and to continue feeding RFID data to SAP Auto-ID Infrastructure.

Getting the Solution Up and Running

In December 2004 SAP and PEAK Technologies put together a joint proposal for the project – creating an RFID solution that would not only meet Wal-Mart's requirements but also scale to allow Pacific Cycle to incorporate customers' RFID/EPC “reads.” Pacific Cycle carried out the implementation project in a production environment. The project was a collaborative effort – with a team made up of representatives from Pacific Cycle's IT warehouse operations organization, SAP Consulting, and PEAK Technologies.

PEAK Automation Controller was developed using SAP NetWeaver technology on the SAP application server – the same server on which the SAP Auto-ID Infrastructure was composed. Sitting between the RFID readers and SAP Auto-ID Infrastructure, the controller filters information and manages the actual devices, primarily the readers.

There were some bumps in the road, but the team took them in stride. “A lot of the glitches had to do with the learning curve associated with using the specialized printers, readers, and tags in the warehouse environment we were working with,” says Matthews. “We were managing and associating the physical flow of goods and trying to create a technical representation.”

Clear Implementation Responsibilities, Good Work

A key component of the project was the early creation of a comprehensive blueprint. The plan included a clear statement of team member roles and responsibilities, as well as how their process flows were related to the project's technical, data, and physical process flows. From the blueprint, the team could create a clear plan that would ensure success of the project on time and within budget – with no surprises.

Going Live

In March 2005 Pacific sent the first order through the system. “This is a unique implementation,” says Matthews of the now live system. “We were able to create an end-to-end, integrated architecture that makes total use of SAP-centric solutions – there are no third-party pieces of middleware that have to be shoehorned into the infrastructure to make it work.

“Now that the implementation has been in place for a while, the system is running smoothly,” he adds. “Based on the RFID data being fed into the SAP R/3 software, we have been able to automate a number of warehouse processes, such as confirming transfer orders, posting goods issue, reducing inventory out of stock, billing customers, and sending out advance shipment notifications.”

Realizing the Benefits

“One of the biggest benefits,” says Matthews, “is being better able to trace our shipments from the time they leave our warehouse until they are sitting on the retailer's sales floor.” According to Matthews, this goes beyond just Pacific Cycle-generated data – the company is pulling in all the retailer's data as well. For example, when a shipment is sent to Wal-Mart, all information gathered during transit by RFID and other radio data capture systems is fed back into SAP Auto-ID Infrastructure and passed on to the SAP R/3 software using SAP NetWeaver XI.

Data analysis is made possible by the analytic features of SAP NetWeaver BI. “This is key information,” Matthews adds. “For example, if we know how long shipments usually sit at the retailer's distribution center before moving to the retail floor, we can adjust our inventory accordingly. With the knowledge gathered using SAP NetWeaver BI, we can fine-tune our supply chain and spot any potential future problems. We have a window into the retailer that we just didn't have before and, at the same time, we have gained increased visibility into the movements of our own inventory.”

Ready for the Next Generation of RFID Technology

“Right now we are concentrating on the shipping process,” Matthews continues. “However, SAP Auto-ID Infrastructure provides a framework that will allow us to go far beyond what we are doing at present. We will be able to take full advantage of the next generation of RFID technology, which will become available in the next year or so.”

Matthews adds that Pacific Cycle's next step is to apply the SAP RFID infrastructure to its receiving processes. One of the long-term goals is to increase visibility into shipments from Asia. “We are already testing tags at one of the Chinese manufacturing facilities,” he says. “This will let us know precisely what merchandise is in the containers headed for the United States – we will be able to track the bikes right into our distribution centers.” He explains that, like the shipping data, the RFID receiving data will go directly into SAP Auto-ID Infrastructure and then into the SAP R/3 back-end software.

“Overall, we are building a highly scalable, RFID-based system that can meet the needs of Pacific and its customers,” says Matthews, “as well as the demands of a constantly changing marketplace.”

