

Case study

## METRO Group

METRO Group puts RFID theory into practice, with real word results



At a glance

Industry: RFID

Application: Case and Pallet Tracking

### Intermec readers help METRO Group reduce labor and lost goods and increase stock availability

METRO Group, the world's third-largest retailer, attracted a lot of attention when it announced plans to use RFID throughout its supply chain and for numerous applications at its famous Future Store in Rheinberg, Germany. Since then, it has gotten something much more beneficial from its RFID efforts: results. Helped by the performance of RFID readers from Intermec Technologies Corp., METRO Group is reaping the time savings, labor reductions and inventory benefits it hoped for when it began testing RFID. Encouraged by its system performance and real-world benefits, the retailer has gone beyond pilot phase and has gone live with RFID in its own daily supply chain operations.

"We have already achieved substantial improvements in our daily routines thanks to the use of RFID. As anticipated, the goods receipt process in our warehouses and stores has accelerated markedly. Less time is lost at delivery," said METRO Group CIO Zygmunt Mierdorf. "RFID helped us identify and eliminate weak spots in the handling process. Other positive effects

were achieved in the shelving of goods at the warehouses. Overall, handling is now more efficient and out-of-stock situations were avoided."

METRO Group, which operates department stores, hypermarkets and grocery stores in 30 countries, basically throughout Europe and in Asia, announced its Future Store Initiative in 2002. The consortium of more than 50 partners develops and tests new applications for all aspects of the retail supply chain, from logistics to the in-store experience. Intermec was one of only two partners selected to provide RFID readers and participated in several of METRO's high-profile RFID pilot programs.

In November 2004, while most of the RFID industry was focused on finalization of the EPCglobal Gen 2 RFID standard and impending compliance tagging program deadlines, METRO passed from pilot to production phase with its pallet tracking applications. In January 2005, as other supply chain programs were going live and the Gen 2 spec was being settled, METRO Group celebrated its "First 100 Days of

RFID” by announcing it had identified more than 50,000 pallets and was enjoying tag read rates well above 90 percent from its Intermec Intellitag® RFID readers. The performance also put METRO in line to extend the benefits RFID produced in its pilot programs, including a 14 percent reduction in warehouse labor, an 11 percent improvement in stock availability, and an 18 percent reduction in lost goods.

In March 2005, METRO, with Intermec and Royal Philips Electronics, demonstrated the first commercial use of an EPC Gen 2 RFID system. The demonstration was the first in the industry to prove the easy upgrade path from an ISO 18000 6B-based system to a system that is ISO, EPC and ETSI-compatible for true, global supply chain use.

### From Pilot to Production

Following its successful pilots, METRO Group decided to implement a full-scale RFID pallet tracking center at its busiest distribution center, in Unna, Germany. METRO is running multiple RFID applications there, including a system to identify garments on hangars that can sort up to 8,000 items per hour.

Intermec was again selected to provide RFID readers for METRO’s full scale applications. More than 40 fixed-position, handheld and innovative forklift-mounted RFID readers from Intermec are now in use.

“Intermec understands RFID and has been an integral partner in our full-scale RFID rollout,” said Dr. Gerd Wolfram, executive project manager of the METRO Group Future Store Initiative. “With the strong read rates and system performance we’ve seen from our Intermec hardware, METRO Group is proving the efficiency and accuracy that RFID promises for retailers.”

Pallet tracking is the foundation of RFID operations at the distribution center. Approximately 20 METRO suppliers (which should grow to 100 by the end of 2005) apply RFID tags to cases and pallets shipped to the DC. Incoming pallets are passed through a dock door portal with Intermec IF5 readers. The fixed-position, intelligent RFID IF5 readers capture the Serial Shipment Container Code (SSCC) identifier encoded in the pallet tag and filter out data from tagged cases on the pallet. The SSCC is automatically reported to METRO’s SAP enterprise system, where it is matched against Advance Ship Notice (ASN) EDI transactions that METRO has

received. Pallets that correspond to an order in METRO’s system are released for putaway. Their contents are automatically recorded as goods in and METRO’s inventory system is updated accordingly.

Several features of the IF5 reader contribute to the success of the application. The IF5 is an intelligent reader, with onboard software that processes tag read data before forwarding it to the system. The data processing results in faster communications and gives the enterprise application clean data to work with. IBM’s Websphere Everywhere software also runs on the IF5 to provide additional data cleansing, using an interface developed by Intermec.

METRO takes advantage of the input/output ports on the IF5 to integrate the readers with motion sensors. When the sensor detects an approaching pallet, the reader is automatically activated to send a read single. This way, no operator intervention is required to request a read, and signals are sent only when necessary, which enables METRO to comply with environmental and emissions regulations. An output port controls a light that signals green if the pallet is cleared or red if there is a problem.

After the system clears pallets for putaway, it directs forklift drivers to pick them up by sending instructions over

an 802.11b wireless LAN to an Intermec CV60 computer mounted on the forklift. To make sure he or she is picking up the right pallet, the driver reads the SSCC tag with an Intermec IF4 reader. Forklifts can only approach the European-style pallets METRO uses from two sides, which may require the reader to read the tag around the corner of the pallet. METRO and Intermec solved this challenge after experimenting with different tag and reader placements.

“Although we had to meet a lot of technical challenges, we are now able to speed up our goods receipt process thanks to RFID,” Mierdorf said.

When forklift drivers arrive at the putaway location, they read a permanent location identification tag. The system verifies the location against the putaway instructions to prevent storage errors. Drivers then receive their next putaway or picking assignment via wireless LAN.

METRO reports trucks are being checked in and unloaded 15 to 20 minutes faster since the RFID systems for pallet identification, shipment verification and putaway have been in place. The time savings raise worker productivity, and should be of particular interest to U.S. companies coping with new Hours of Service rules that are complicating dock and driver management. Incomplete shipments are detected immediately, which



has improved inventory accuracy and is a major reason why METRO has reduced out-of-stocks at its stores by 11 percent.

The process works in reverse to ensure orders sent to stores are accurate. Forklift drivers pick orders by receiving instructions on the CV60, validating the pick location by reading the RFID location tag, then validating the case being picked by reading its RFID or bar code label. Picked items are delivered to a packaging area where they are loaded onto pallets for delivery to stores.

Mixed pallets are common for store orders, so it is very important to accurately identify each item on the pallet. Items are scanned and the data is compared to order information in the host system. When the complete order has been packed, the pallet is shrink wrapped. An Intermec Intellitag RFID tag on the pallet is then read, and the pallet contents are associated with the pallet ID in METRO's database system. The pallet is then cleared for delivery to the store, where an automated RFID receiving system similar to the one at the DC is used to verify the shipment and record the goods in.

#### Next Steps

METRO Group's next steps are to expand its RFID programs while implementing its next-generation technology infrastructure. METRO plans to have 100 suppliers providing tagged goods by the end of 2005, and approximately 300 suppliers, accounting for 60 to 80 percent of the total value of merchandise METRO sells, should be tagging by the end of the following year.

METRO Group will eventually use EPCglobal Generation 2-standard RFID technology throughout its operations. Features in the Intermec readers METRO is using now will make the transition to Gen 2 easier. Intermec RFID readers comply with European Telecommunications Standards Institute (ETSI) regulations for use in Europe. The ETSI-certified IF5 and IF4 ISO 18000-standard readers METRO is using can be upgraded to read Gen 2 tags through a simple firmware download. There is no need for METRO to replace its equipment or to install new components. Intermec's SmartSystem® technology and device management software can be used to download firmware and configure devices remotely, which means Gen 2 upgrades



can be completed without ever physically handling the equipment. METRO plans to complete its conversion to Gen 2 by the end of 2005.

New locations and applications are being added as METRO continues to expand RFID programs. The retailer's RFID rollout will focus in its first steps on the sales divisions Metro Cash & Carry self-service wholesale stores, Real hypermarkets and Galeria Kaufhof department stores.

Current applications will be expanded, while new applications will be tested and added. Intermec will continue to work with METRO Group to deliver the benefits of RFID for consumer goods supply chain operations.

"Demonstrating the business advantages of new technologies such as Intermec's Intellitag RFID will vividly illustrate how retailers can increase system-wide efficiency and inventory accuracy while at the same time increasing profits," Mierdorf said. "We are very happy about Intermec's highly ambitious engagement in this groundbreaking store of the future."

#### About Intermec

Intermec Technologies Corporation, a Unova Company, is a global leader in the development, manufacture and integration

of automated data collection, wireless systems, terminals, mobile computing, printers and media. Our products and services are used to improve productivity, quality and responsiveness of business operations in multiple industries. Intermec has served customers since 1966.

In addition to comprehensive solutions for mobile computing, we provide products and services within these categories:

- Data capture scanners and wedges
- Wireless Local Area Networks (LANs)
- Wide Area Networks (WANs)
- Personal Area Networks (PANs)
- Handheld, vehicle & fixed-mount terminal solutions
- Label and media supplies
- Printers
- Emerging data collection and management technologies including smart card and RFID tags
- Software-based solutions

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