

# RFID

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## Best RFID Implementation



“Charles Vögele Group has taken a vertically integrated approach to RFID, tracking goods from the point of manufacture to the point of sale. This is probably the most comprehensive retail supply-chain application I have seen.”

—Awards judge Bill Hardgrave, director, RFID Research Center, University of Arkansas

## An RFID Fashion Statement

*Switzerland’s Charles Vögele Group discovers that fashions tracked and managed via RFID are always in style.*

BY JOHN EDWARDS

While Switzerland isn’t considered one of the fashion capitals of the world, it is known for its commitment to product design and construction. Now it’s on the map as the place where fashion and technology converge, thanks to a “Swiss-made” item-level RFID system developed by fashion retailer Charles Vögele Group.

Based in Pfäffikon, near Zürich, Charles Vögele is active in international retail clothing markets, operating subsidiaries in Switzerland, Austria, Belgium, the Czech Republic, Germany, Hungary, the Netherlands, Poland and Slovenia. The company specializes in women’s, men’s and children’s collections, which are produced by external suppliers in various countries in Southeast Asia and Europe. “In our stores,

with minor exceptions in Switzerland, we have purely 100 percent private label,” says Thomas Beckmann, VP of group supply-chain management for Charles Vögele. “Everything is designed by ourselves and was produced according to our orders.”

The RFID system that places Charles Vögele on the leading edge of supply-chain technology tracks individual garments as they move around the world. “It’s the first time ever that RFID has been used to do end-to-end item-level tracking—from tagging in Asia all the way to the stores in Slovenia,” says Prasad Putta, VP and general manager of merchandise visibility solutions for Checkpoint Systems, the RFID technology provider that helped Charles Vögele develop its system.



Like a growing number of retail businesses, particularly those carrying high-value items, Charles Vögele was intrigued by the idea of using RFID to track products on an item-level basis. The technology promised to give the company visibility into key supply-chain steps, while providing fuller control over inventory and store stocks.

After pondering the matter, Charles Vögele soon found itself focusing on a single, fundamental idea. “We believed that item-level information would facilitate better information and process development in our entire supply chain,” Beckmann says. “That would provide a base for competitive advantage, which could increase sales rates and decrease supply-chain costs.”

#### DESIGNING A SYSTEM

Charles Vögele began developing a sophisticated RFID system, working with a team of external partners. To provide a standards base for its RFID infrastructure, the company turned to EPCglobal, which ensures that every tag is serialized and unique.

The project focused on two types of sup-

pliers: a pair of “A” suppliers, with a total of eight production sites, that through the years had achieved a solid performance record and overall good relationship with Charles Vögele; and all the “B” suppliers, which produce garments for the retailer either at a low volume or on a sporadic basis. Both “A” and “B” suppliers were asked to RFID-tag the garments they produced. The “A” suppliers were also required to use handheld RFID interrogators to help their employees pick and pack orders faster and more accurately.

“A’ suppliers executed an RFID-based picking and packing process,” says Jörg Koopmann of KooBra Software Entwicklungs, a German software developer that collaborated on the project. “B’ suppliers picked and packed traditionally, without any technical support.” The approach enabled Charles Vögele to compare delivery performance between RFID-enabled and non-RFID-enabled suppliers. “The result was that ‘A’ deliveries were more accurate, according to the order we send off, than the ‘B’ suppliers,” Beckmann says.

Both supplier groups transfer their shipments via a logistics service provider to a container freight station (CFS) located near

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—Thomas Beckmann

Shanghai Harbor, in China. At the station, RFID interrogators read every tag on every garment inside each box received, verifying the data against a virtual packing list. “When the boxes get to this CFS, the quantities in the boxes are checked without opening the boxes,” Beckmann says. “If they are off, the box is marked with an X.” The mark serves as an important signal for inspectors located farther down the delivery chain.

The next step in the garments’ journey from Asia to Europe is a stopover at Charles Vögele’s European hub, located near Hanover, Germany, where quality checks are performed on the goods. Damaged and inferior deliveries are sent back to the suppliers. Shipments destined for the five stores in Slovenia head to Charles Vögele’s distribution center, just outside of Graz, Austria, for short-term storage. Here, employees inspect incoming cartons, opening those marked with an X to inventory and repackage the garments.

Before delivery to the Slovenian stores, some garments are sent to a value-added logistics service provider for final preparation. The items undergo a “tunneling” process that uses heat and humidity to steam out wrinkles and creases.

RFID kicks into high gear as the garments arrive at each store, each of which has approximately 800 square meters (8,611 square feet) of floor space, roughly 25,000 products and a single point-of-sale (POS) position. So far, the company has RFID-tagged more than 380,000 items. Beckmann says the technology is used for:

**Goods entry and departure tracking.** Handheld RFID interrogators are used to record the arrival of new garments, as well as the disposal of any unsold merchandise.

**Stock-out management.** Handhelds tell store employees when stock needs to be replenished.

**POS transactions.** Fixed RFID interrogators under the counter read the tags, allowing the system’s software to record the sale and update the store’s inventory database.

**Front store/back store stock booking.** RFID records which items are brought out from stock and onto the sales floor, updating the status of each item individually.

The RFID tags serve a dual function, says Checkpoint’s Putta. They operate as ordinary RFID tags for traditional supply-chain and inventory-control processes, and as electronic article surveillance (EAS) tags inside stores to deter shoplifters and employee theft.

Beckmann notes that Charles Vögele is also exploring the possibility of using RFID to study consumer buying habits. Recently, shoppers agreed to participate in a customer tracking trial at one of its stores. “People were given RFID tags and left to roam the stores,” Beckmann says. “By tracking customer movements, managers could determine what types of racks [presentations] sold, which did not and which areas were most popular.”

#### SHAPING THE FUTURE

The entire system took about two years to design and implement, Beckmann says. Planning began in November 2006, followed by development and testing in August 2007. The rollout got under way in March 2008 with source tagging in Asia. Warehouse tracking began in June 2008, and the stores came online in August. From September through December, performance measures and optimization processes were established. “The project was created in a way that allowed us to learn and develop as we moved forward to improve technology and optimize running processes,” Beckmann says.

He notes that item-level tracking poses unique challenges. Perhaps the most significant issue the company faced was tweaking the system to get accurate reads on multiple products jammed together inside a single box. “A unique hanging garment is not a problem for RFID at all,” Beckmann says. “But if you have a few hundred pieces on a flat pallet, then you come into some limitations. If you look for swimwear, where you

have tiny products and hundreds of products within one box, there are challenges for RFID technology.”

Charles Vögele also ran into a perplexing situation inside some of its stores: Interrogators occasionally coughed up double or triple tag reads. Beckmann says technicians tried to solve the problem in various ways, including modifying the software, adjusting the interrogators and even installing different antennas. After a good deal of head scratching, they suddenly realized that something in the flooring was reflecting RFID signals. “We ended up with a stupid solution, which was just installing a different flooring,” he says. “The read accuracy improved immediately.”

The project aroused suspicion at some steps along the supply chain, where the technology’s arrival was viewed as a potential threat to employee jobs, Beckmann says. “More transparency, improved processes [and] efficiency...led to insecurity and fear,” he says. RFID education and training helped the employees understand that their careers weren’t at risk. On the other hand, sales staff welcomed the new transparency and efficiency of operational processes on the shop floor, Beckmann notes.

Looking back on the project to date, Beckmann says he’s more than pleased with the results. In quantifiable terms, he reports that Charles Vögele is achieving:

- Time savings of 70 percent or more when taking store inventories
- Time savings of 70 percent or more when taking warehouse inventories
- A 7 percent increase in accuracy of picked orders in factories

There have been ancillary benefits as well, including:

- Increased sales, thanks to fewer out-of-stock items
- Support for Charles Vögele’s supply-chain policy of having “the right product at the right place on time”
- Better data for tracking and tracing
- More accurate planning information

Beckmann acknowledges that Charles Vögele would not have been able to build its complex infra-

structure without close cooperation from several technology and logistics partners. Checkpoint Systems supplied the system’s ultrahigh-frequency Gen 2 tags, and Impinj and Sirit fixed interrogators and antennas. The company also provided software for POS and front store/back store readings.

KooBra Software Entwicklungs provided hardware and software for the backbone system. Key elements of the software solutions are used in pick-and-pack processes at the supplier’s side, goods receiving and distribution along the entire supply chain, and stock-out handling processes on the sales floor. To speed both training and daily use at the supplier sites, KooBra developed a user interface that displays in Chinese, as well as in Slovenian, English and German.

Kuehne+Nagel, a logistics service provider, developed container freight station processes and key performance indicator metrics. Meyer & Meyer and Jöbstl, two warehouse logistics service providers, adapted their processes to accommodate the RFID system.

“This team met regularly with a very open mindset,” Beckmann says. “Whatever problems we faced, we discussed together to find the most practical solution.” The team members held a weekly phone conference for the duration of the project.

While the initial launch covered only a limited number of suppliers and just four stores, the system was designed from the outset for easy expansion. “The way we set this up, we can install the system wherever we want, on any RFID-equipped shop floor,” Beckmann says.

Besides creating more transparency and greater efficiencies, Beckmann believes the system has allowed Charles Vögele to gain fresh insight into its day-to-day operations. “We discovered RFID technology changes processes,” he says. Down the road, Beckmann sees RFID playing a major role in how the company will design facilities and meet customer needs. “It’s more a change-management issue than a pure technology issue,” he says.

Beckmann offers one final word of advice to retailers pondering the creation of their own item-level tracking system: “RFID is a new technology facilitating all kinds of new and different processes. Just be open-minded.” ■