

Ahlsell's New Warehouse Management System

CASE STUDY

FASTER ORDER FULFILLMENT FOR A GROWING BUSINESS Ahlsell, a leading European wholesaler of plumbing, heating, water, sewage supplies, and electrical equipment, expanded its product line and acquired several companies. They began experiencing common growing pains, seeing their order fulfillment time increase. Searching for a way to manage the planned increases in throughput, Ahlsell turned to LXE for an improved warehouse management system. Since installing their new LXE 2.4GHz wireless system, Ahlsell processes orders more quickly, allowing them to cope with increased volume of SKUs, while improving the company's quality levels.



If you are an electrician in Sweden, or an air conditioning installer in Denmark, or a plumber in Finland, or a heating contractor in Poland, the chance is high that you will have conducted business with Ahlsell.

Ahlsell's mission is to offer the same product availability as a small local supplier while operating just as smoothly, flexibly, and with the strength, resources and potential of a major wholesaler.

Customers – installation companies, industries, municipalities and retailers – can get their products from Ahlsell in a variety of ways. They can order via telephone, fax or Internet for a delivery to their workplace – and Ahlsell can deliver 99% of goods the day after order receipt. Customers can also visit one of more than 70 self-service outlets, strategically located in all Scandinavian countries.

Whichever method is used, the key to speedy deliveries and efficient service is clearly the central warehouse in Hallsberg, near Stockholm. This is the distribution hub from where orders are sent to customers and the self-service outlets are restocked.

Ultra-modern Facility

The central warehouse in Hallsberg is one of Scandinavia's most modern warehouse facilities. It was built in 1990 and since then has undergone four expansions. From here, goods flow to customers in Sweden, Norway, Finland, Denmark, the smaller states lining the Baltic Sea, the western parts of Russia and Poland, and the self-service outlets. Activity is conducted with an eye on the highest efficiency possible. The facility is open 18 hours a day (from 6:00AM to midnight), five days a week.

The central warehouse currently comprises 39,000 square meters of space indoors (further expansion in

the near future will increase this figure to 49,000 square meters) and 170,000 square meters outdoors. The fully automated high-bay storage area alone occupies 3,000 square meters – and is an impressive building, 114 meters long and 28 meters high.

65,000 items are stocked in the warehouse, and there are spaces for 50,000 pallets. Each day over 100 trucks arrive and depart from the warehouse that is operated by 340 people employed at the facility.

In addition to the investments in this central warehouse, Ahlsell has also invested heavily in a purpose-designed information system, Ahlert-Vivaldi, which is one of the most sophisticated in the country. Ahlert-Vivaldi is continually updated to keep pace with customer requirements. The system increases product availability, improves stock-keeping, and facilitates supervision.

A Growing Concern

Last year, Ahlsell's turnover reached 7 billion SEK. Within two years this figure is expected to have reached 10 billion SEK. Reasons for such a massive jump in turnover include the success of the company's operations, as well as an aggressive acquisition program of smaller companies in the region.

The booming business is perfectly illustrated by some impressive statistics. From the Hallsberg warehouse, 30,000 order lines are currently shipped per day; in the near future Ahlsell expects to be shipping close to 50,000 order lines per day. Currently Ahlsell holds 65,000 articles in stock; the number of articles will be approximately 90,000 within two years.

However, growth brings its own problems. With these planned increases in volume and throughput, it became clear that an improved warehouse management system was needed, to cope with these increased

LXE

levels and at the same time maintain or even improve the company's quality levels.

The Warehouse Management System

Ahlsell was one of Sweden's pioneers in the use of narrow band radios. This system was installed in the Hallsberg warehouse in 1993-95 and was used solely for order picking. The enhanced warehouse management system at Ahlsell is based around a new 2.4GHz radio frequency (RF) system. Currently the do-it-yourself (DIY) area of the warehouse is upgraded to wide band radio technology. Eventually wide band RF will be implemented throughout the whole warehouse.

"We decided to install a wide band RF system because it gives us the possibility to make significant improvements in terms of productivity, accuracy and quality of our delivery," said Hans Gunnarsson, internal consultant and project manager for the implementation of Ahlsell's warehouse management system.

The warehouse management system was conceived, installed and successfully started up by Industri-Matematik International (IMI), a global software company headquartered in Stockholm, that specializes in providing high-performance fulfillment and customer service software solutions.

At Ahlsell, IMI installed its own VIVALDI software suite to co-ordinate order management, warehouse and replenishment management, and supply chain metrics.

VIVALDI enables companies to replace inventory with information to speed the movement of goods through the supply chain.

VIVALDI processes more than 20 million order (transaction) lines per year at Ahlsell for 1500 concurrent users (both customers and Ahlsell personnel), on a RS6000 computer system from IMI's strategic partner, IBM, running the Oracle database.

The RF Equipment

For specialist RF equipment, IMI turned to LXE Inc. of Atlanta, Georgia, USA. LXE has developed and supplied leading edge wireless solutions for warehousing and logistics management applications for over 30 years, and pioneered some of the first RF data collection technology available. The company has installed its wireless logistics systems at more than 6,500 sites in over 92 countries.

Working with LXE's Swedish affiliate in Akersberga, IMI selected and tested – and fully approved – some of LXE's most recently released RF devices for technical performance. Ahlsell then investigated their quality and price and also decided in favor of them.

LXE Wireless Access Points were installed in the

DIY area of the warehouse. These industry-standard 802.11b compliant Access Points bring the required open systems connectivity to the Ahlsell 2.4GHz RF network.

In Hallsberg, the Access Points are combined with LXE's Spire Antenna. This radio antenna, for 2.4GHz Spread Spectrum networks, is based on technology originally developed for space applications. The Spire Antenna provides increased coverage, superior performance and greater throughput than conventional antennas.

By increasing the coverage by 35-40%, the Spire Antenna makes 2.4GHz technology a viable option for applications such as the Ahlsell central warehouse, where previously only narrow band was suitable. Its increased throughput means that a 1Mbps radio can still operate reliably at 250 meters; with a conventional antenna and the same radio, the distance would be much shorter.

LXE mobile computers are fitted to forklift trucks. The vehicle-mounted computers are designed to run complex applications in client/server mode in industrial environments. Equipped with a 133MHz processor running Windows, and supported by 32MB of RAM and 32MB of flash memory, the vehicle-mounts have a 10.4-inch, full-screen TFT color display that provides extremely good readability from all viewing angles.

"We particularly appreciate the robustness of these terminals and operators find the keyboards with protective skin easy to use," says Hans Gunnarsson. "Furthermore, as we intend to use them outside, the fact that they are sealed against rain and dust makes them ideal."

The DIY area takes up 20% of the total warehouse space. For optimal operation in this area, 15 Access Points were installed and 15 vehicle-mount computers were fitted to forklift trucks.

The operators reacted favorably to the new RF system, which was not surprising for two reasons. First, the operators of the computers were involved in the selection of what kind of computer to use in the first place. Second, they were accustomed to the use of radio computers, as they had already been using narrow band, so it wasn't a major change in operations for them and minimal training was necessary.



RF System in Practice

The RF system is used for goods registration, sorting and order picking. Items entering the arrival hall at the central warehouse from a supplier are registered on a terminal and this information is relayed by RF communication to the IBM computer running the VIVALDI Suite. The forklift truck operator then receives data from the system – via RF directly to his vehicle-mount computer – as to which buffer area the stock should be moved to. Alternatively it may be sent directly to a storage area.

In the buffer area the order to refill the normal storage areas is also processed automatically by the warehouse management software. The system prioritizes the order and automatically generates a refilling order. Thus the package can be quickly sent to exactly the right destination and inventory replenishment is assured.

All communication from the system to the actual picker is also made through RF communication. The picker receives his order from an RF terminal, processes the order and signs it off by scanning the bar code of the article with a handheld scanner after the picking is completed. More than one order can be picked at the same time; different priorities for different customers or order type can also be managed simultaneously.

Faster, Better Service

Since the new warehouse management system has been introduced, Ahlsell has been able to process orders significantly quicker. This means that throughput has increased. Up to 20% more order lines can be processed per hour, and productivity has risen by 7%.

“At the same time, we have suffered no loss in quality,” explained Hans Gunnarsson. “On the contrary, picking errors have reduced and the number of customer complaints has significantly dropped.”

“Overall we are delighted in our investment in RF technology. Without it, we would not have been able to expand our product range or our geographical coverage or increase our quality levels. The payback period for our investment in the RF system is estimated at between 18 and 24 months.”

Extended Project

Based on the smooth success achieved in the DIY area of the central warehouse, Ahlsell has since implemented another stage of the warehouse management system, which included the rest of the warehouse as well as the outdoor area.

Ahlsell is planning to build a new warehouse in Finland in order to better meet local Finnish requirements. When this building is complete, the new warehouse management system will also be immediately implemented there.



About LXE Inc. LXE Inc. improves supply chain performance by applying over 30 years' experience developing wireless products and solutions. From wireless computers, advanced auto-ID technologies, and wireless network infrastructure, to our award-winning customer support - LXE's easy-to-use products are as reliable as the people who install and support them.

Based in Norcross, Georgia, LXE also offers a full range of turnkey services, including radio integration, project and installation management, network design, technical support, and repair services. LXE is a wholly-owned subsidiary of EMS Technologies, Inc. (NASDAQ: ELMG), and has offices worldwide. For more information, visit www.lxe.com.