



Levi Strauss & Co. Pockets of Opportunity with GS1 EPC-Enabled RFID

Levi Strauss & Co. (Levi Strauss) invented blue jeans 140 years ago. Founded in 1852 in Sacramento, California by Levi Strauss, the company manufactures jeans and casual wear under its leading global brands: Levi's®, Dockers® and Denizen®. The company employs approximately 5,000 people around the world, with a presence in more than 110 countries.

Opportunities for Improvement

Levi Strauss generally manufactures its products in regions where it also markets and sells them. By managing 50 production centres and going to market in 110 countries, the company certainly has a complex supply chain.

In 2005, Levi Strauss decided it needed more reliable and precise control of its inventory – an improvement that could, in turn, increase the efficiency of its processes as well as profitability. As a result, Levi Strauss introduced GS1 Electronic Product Code (EPC)-enabled radio frequency identification (RFID) technology into its operations.

The organisation decided to initiate an EPC/RFID pilot in Mexico since its operation there was highly structured and could effectively facilitate and follow-up on each step of the pilot along the way, tracking and reporting overall progress of the project.

Once approved by the Levi Strauss headquarters, a work group was formed, consisting primarily of key people from Systems Architecture, Sales and IT Management.

After an exhaustive analysis of the supply chain, the team uncovered these findings:

- Inventory supply in stores of four months or more.
- Discrepancy of 20 percent between physical inventory levels reported compared to those reported in systems.
- Incomplete or incorrect orders.
- Unnecessary purchases, resulting in inactive or overstocked products.
- Lack of detail such as sizes and colours in inventory reporting.
- Sales not meeting the expectations of high inventory levels.

"It [GS1 EPC-enabled RFID] is a competitive advantage and an innovation within the organisation."

*– Abel García
Director of IT, Levi Strauss, Latin America*



Scope of the Pilot

Based on its thorough analysis, the team determined that Levi Strauss stores would be the most effective components of the supply chain in which the EPC/RFID technology could be used, since it would support the stores' daily operations. Furthermore, they believed EPC/RFID would enable more precise, real-time control of inventory with the capability for stores to issue inventory reports to the distribution centre (DC) and manufacturing plant.

The team decided to develop its own middleware, which gave them the ability to more easily modify or switch the platform according to the requirements of the pilot as it progressed, adhering to the GS1 EPC Standard.

Pilot Objectives

Financial Objectives

Reduce inventory levels to, at most, two months.

Reduce the percentage of out-of-stock items.

Accurately manage replenishment of merchandise, automatically generated with EPC/RFID technology.

Increase sales.

Operational Objectives

Fully integrate EPC/RFID technology into the DC operation.

Implement EPC/RFID technology-based operations in stores: goods-in, sales, returns, exchanges and inventory management.

Origin of the Pilot

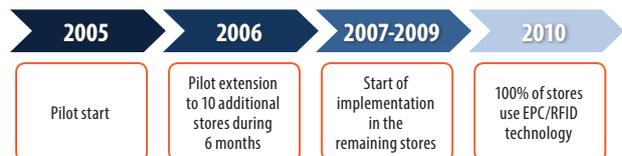
During the second half of 2005, the work group launched the pilot with a clear vision of its targeted objectives. A store was selected to operate as the pilot; it was equipped with the middleware and all items were identified for tagging with EPC/RFID labels.

At the end of the six months, the pilot results exceeded the targeted objectives.

An analysis clearly demonstrated a change in inventory management: ideal stock levels were achieved, which were based on what items were actually sold and prevented the procurement of unnecessary items or sizes. In addition, there was a 40 percent reduction in out-of-stock items and an increase in sales.

With this initial success, the team expanded the pilot to include 10 additional stores, three of which were located in department stores. The aim was to confirm that the results could be achievable and have the same impact, regardless of the area, staff, items and other variables.

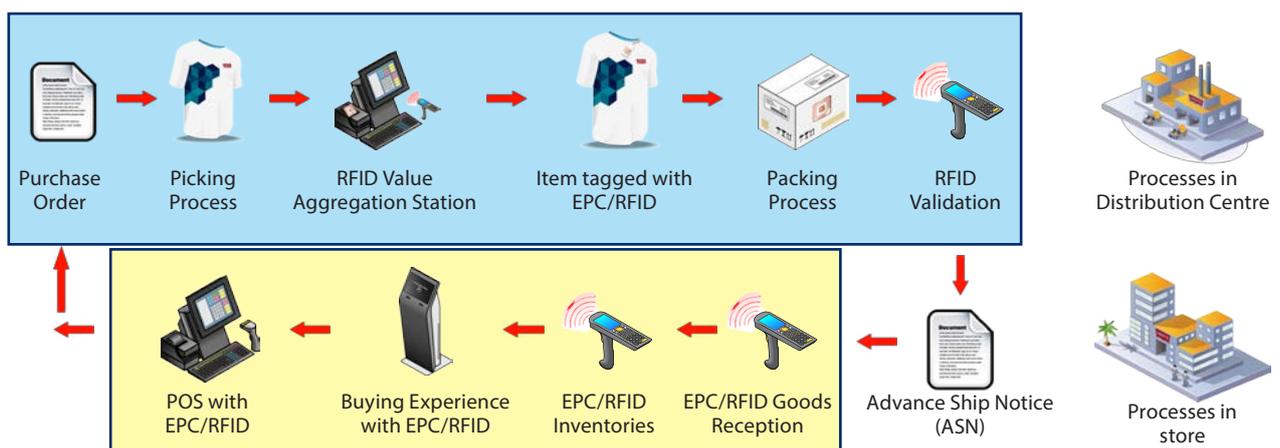
EPC/RFID Implementation Timeline



Integrating EPC/RFID into Processes

In 2007, based on the positive business benefits from using EPC/RFID technology, Levi Strauss decided to transition from its pilot phase to a concept phase by sequentially implementing the EPC/RFID solution in its remaining stores.

EPC/RFID-Enabled Processes



With the GS1 EPC/RFID solution integrated into stores' processes, the DC receives a purchase order (PO) for only the merchandise needed. Ten stations out of a total of 25 are assigned to exclusively tag with EPC/RFID at the item-level and case-level, at the same time.

To validate shipments, an RFID portal was installed at the weighing station where information included on the EPC/RFID tags on cases and products is read in order to validate its contents. If the data provided by RFID scan is the same as data provided with the PO, the case is available for shipment.

The Advance Ship Notice (ASN) reaches the store before the arrival of the ordered merchandise. Upon receipt of the cases, a portable RFID reader validates receipt and the contents. The device also enables the store to recognise receipt of the delivered merchandise without the need to open each case to verify its contents. The GS1 Standards-based data read and reported by the device is compared to the data contained in the ASN for verification; it is then loaded automatically into the inventory database.

Intended as a marketing tool and for consumer engagement, an interactive system was created as an "intelligent mirror." The mirror recommends, by reading the consumer item's EPC/RFID tag, a variety of options that may have not been initially considered by the consumer such as different colours, sizes, combinations, accessories and expert opinions, thus enhancing the consumer's buying experience. Thanks to this application, the consumer can identify other products that were not part of the initial search, which may translate into increased sales.

"With this technology we achieved inventory control at the highest level, to such an extent that today we make available the necessary in-store merchandise to satisfy our customers' needs."

*– Abel García
Director of IT, Levi Strauss, Latin America*

Results from EPC/RFID Integration

Store Inventory

Reduced inventory in stores from a four-month to a two-month supply.

Improved inventory accuracy to 99 percent when comparing on-shelf inventory levels with levels reported in the company's system.

Removal of inactive products.

Consolidated hypothetical and on-shelf inventory, recognised in four hours with an error margin of one percent.

Provided more complete and detailed inventory view.

Sales

Increased sales by 11 percent.

Improved availability of products, including those with higher demand.

Enhanced consumer buying experience.

Out-of-Stocks

Reduced lost sales by 40 percent due to reduction in out-of-stock merchandise.

Replenishment in Stores

Increased efficiency via fully automated replenishment.

Increased hours of operation and opportunities for more sales through the elimination of store closings for inventory and replenishment.

Improved ability to verify the accuracy of work in warehouse.

Financials

Reduced transport costs, typically qualified as "wait times."

Optimised logistics operations, achieved by distribution to a higher number of stores per day.

Increased efficiencies in DCs.

Integration of RFID into Operations

Automatic replenishment management via the system.

Elimination of manual processes.

Increased availability of staff for improved customer service.

Improved productivity since the staff is no longer required to memorise codes.

High levels of acceptance of new EPC/RFID solution by staff.

Enabled traceability of merchandise, facilitating the identification of possible bottlenecks in the supply chain.



Next Steps

Currently, Levi Strauss is preparing to integrate EPC/RFID into its linear production, including the manufacturing plants, DCs and stores. This includes tagging each item with a single EPC/RFID label for greater efficiency and traceability within the supply chain – from manufacturing point to store.

Lessons Learned

- From its experience with EPC/RFID technology, Levi Strauss advises that, prior to implementing a new technology, it is paramount to fully understand the internal processes and “weak spots” within the organisation. These areas of opportunity can then be targeted for improvements with the technology. By taking this approach, the company was able to discover the major benefits of integrating EPC/RFID technology at the store level, as opposed to the DC level as initially planned.
- By reducing inactive inventory, Levi Strauss was also able to reduce its working capital, which translated into an increased available budget for investments in essentials for sales.
- The company found that synergy and collaboration between the various departments such as Sales and Logistics were crucial to ensure results.

“Technology as an enabler, on its own, doesn’t really do anything. You must effectively integrate RFID into a store’s operations for it to be useful.”

– Abel García
Director of IT, Levi Strauss, Latin America

For more information

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