

Liverpool: Large Retailer in Mexico Improves its Supply Chain with EPC RFID

Liverpool is a leading retailer in Mexico with sales totalling more than \$5.2 billion in 2012. The company's supply chain relies entirely on its distribution centre (DC) located in Tultitlán (Estado de México).

In 2002, Liverpool began to aggressively expand its store operations, opening five to seven stores each year. This rapid growth meant Liverpool needed to re-engineer processes within its distribution centre as well as get ready for the future. An initial goal of the re-engineering initiative was to optimise the company's warehousing processes through automated warehousing and sorting systems for increased efficiencies. Upon achieving this goal, Liverpool then focused on improving inventory management and optimising receiving and dispatching processes – areas where the use of technology would provide the greatest benefits.

Company Profile

Founded in 1847, El Puerto de Liverpool is a conglomerate comprised primarily of department stores with a strong presence in Mexico and supported by its own line of consumer credit and financial interests in shopping centres.

Liverpool consists of three divisions: The commercial division is comprised of three department store organizations (Liverpool, Fábricas de Francia and Duty Free), representing 99 stores and 1.3 million square metres of functional and modern shop floors, serving 56 cities in Mexico.

The real estate division has operations in 19 shopping centres with more than 100 million visitors a year. The third one is the credit card division, making it the first credit card issuer in Mexico not affiliated to any bank and third in size, when including the financial sector.

Opportunities for Improvement

In 2002, Liverpool started its supply chain optimisation process, targeting the following improvement objectives:

- Improve product visibility along the supply chain.
- Decrease case- and pallet-level shipping errors related to content or final destination.
- Increase inventory accuracy.
- Decrease the quantities of missing and surplus products associated with plastic cases or containers.
- Increase speed of taking inventory.
- Decrease costs associated with erroneous deliveries.

When searching for the right technology to address these challenges, Liverpool considered radio frequency identification (RFID) technology as an excellent option. After a preliminary assessment, the company decided to implement GS1 EPC-enabled RFID technology, using a step-by-step implementation strategy, starting with a pilot and building on its successes and lessons learned.



Liverpool's preliminary assessment tested the feasibility of implementing EPC RFID labels on standard plastic cases as logistics units used in the DC's warehousing and shipping processes. As a result from the re-engineering process, the plastic case was a mechanism for standardisation and added value by being a reusable asset in the supply chain.

The Pilot

The objective of the pilot was to validate the accurate reading of 100 plastic cases using EPC RFID in the following areas:

- **Reception** where products from suppliers are received.
- **Consolidation** where the content of cases is validated against specific orders.
- **Dispatch** where goods are shipped to all department stores.

Liverpool believed it was necessary to define a codification standard for the labels applied to the plastic cases. At the same time, the company wanted to assess the benefits of taking a standards-based approach compared to one based on proprietary codes.

The GS1 Electronic Product Code (EPC) standard was chosen by Liverpool based on its robust benefits for data exchange along the supply chain – in Mexico and worldwide. As a global standard, the GS1 EPC also offered Liverpool potential economies of scale to support its growth.

To manage the pilot, three technology companies were invited to perform a Proof of Concept (POC). The selected company was responsible for the installation of EPC RFID "read-points" in the Tultitlán DC areas of reception, consolidation and dispatch.

One finding from the POC was the need to build an EPC RFID tunnel in order to achieve a 99.9 percent reading accuracy level of incoming and outgoing plastic cases.

As the pilot concluded in 2007, Liverpool decided to expand the scope of the EPC RFID technology within its distribution centre, to include three entry gates at reception, three EPC RFID read-points in the sorting area, and all shipping gates. In addition, EPC RFID labels were now used on 100 percent of plastic cases containing goods.

"EPC RFID changed the current retail processes ... and resulted in applications and benefits not initially taken into account at the beginning of the project."

*– Javier Méndez Trujillo
Logistics Senior Manager, Dynamic Response, Liverpool*

In addition, a new reception model named "SEMI" was introduced and used with cardboard box-level labelled goods. Unlike the plastic cases reception method, known as "PLANO", the cardboard boxes have disposable EPC RFID labels.

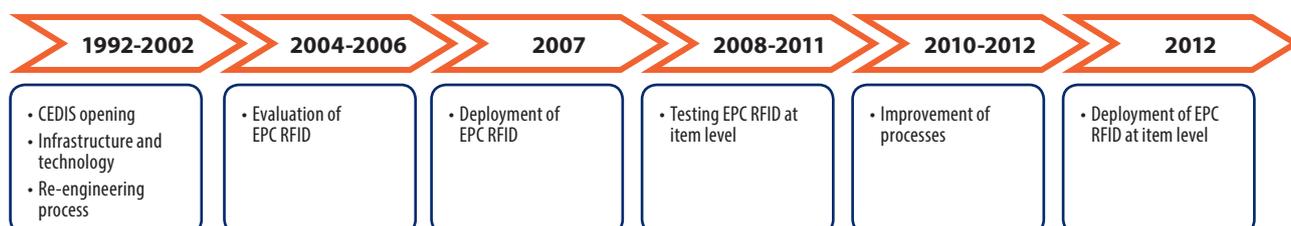
Item-Level Tagging

In 2008, Liverpool commenced testing EPC RFID item-level tagging with different manufacturers and product categories. Just four years later, the company had increased its usage from six to 70 DC areas; from two to 150 suppliers; and from two to 96 department stores. Today's main product categories for item-level tagging are textiles, apparel and white linens.

With EPC RFID item-level tagging, the goods travelling from reception to shipping generate valuable information for Liverpool to better organise the flow of products and their arrival at the correct stores. Currently, the Tultitlán DC supports 51 EPC RFID read-points distributed throughout the centre as follows:

- Six (6) read-points in the PLANO reception area that process standard-sized containers, using reusable RFID tags to validate item-level content.
- Three (3) read-points in the SEMI reception area that process different-sized cartons containing fragile or special goods, using non-reusable RFID tags to validate that the cases belong to the same store and are ready to be shipped.
- Eight (8) read-points in the PLANO consolidation area to validate that cartons belong to the same store and are ready to be shipped.

Liverpool Re-Engineering Process Timeline



- Two (2) read-points in the SEMI consolidation area to validate that all cartons belong to the same store and are ready to be shipped.
- Thirty-two (32) read-points in the delivery areas to validate that pallets are loaded at the correct shipping gates.

What is RFID?

Radio frequency identification or RFID is an automatic data capture technology, which uses radio waves to flawlessly identify objects, locations and more. RFID has the capacity to identify one or more objects simultaneously without, in most of the cases, human interaction or line of sight, thus enhancing efficiencies of key business processes.

What is EPC?

Electronic Product Code or EPC is an electronic tag that contains a unique number called the Serialised Global Trade Item Number® (SGTIN®), which uniquely identifies that item. Moreover, it provides valuable product-related information, at any point in time, about its physical location as well as detailed information such as length and width, various dates, manufacturing location and expiry date.

GS1 Standards Used

The Serialised Global Trade Item Number (SGTIN) is used to uniquely identify individual items.

The Serial Shipping Container Code (SSCC) is used to identify logistics units like pallets.

The Global Returnable Asset Identifier (GRAI) identifies disposable or returnable assets like cardboard boxes.



Achievements and Benefits

Objectives	Results
Improve product visibility along the supply chain.	100 percent product visibility from distribution centre to store.
Decrease case- and pallet-level shipping errors related to content or final destination.	80 percent decrease in shipping errors.
Increase inventory accuracy.	Increased inventory accuracy from 80 percent to over 98.6 percent.
Decrease the quantities of missing and surplus products associated with plastic cases or containers.	Decreased consolidation errors by 98 percent.
Increase speed of taking inventory.	Increased inventory capacity from 500 to 7,000 products per man-hour.
Decrease costs associated with erroneous deliveries.	Decreased total operational errors from 0.63 percent to 0.05 percent.



EPC RFID to the Stores

Today, 96 Liverpool stores benefit from processes using EPC RFID technology, especially in cycle counting for inventory management. There are also 263 mobile EPC RFID readers spread over the stores' premises, supporting solutions that enhance Liverpool's consumer shopping experience like Smart Shelves and Points Of Sale (POS) in sections where products are EPC RFID item-level tagged. Finally, progress is being made by Liverpool to integrate other product categories such as white goods, home furniture, kitchen appliances and more.

Conclusions and Lessons Learned

- The step-by-step implementation enabled Liverpool to continuously learn to decrease total investment, to mitigate the impact of implementation, and to generate short-term benefits.
- The use of GS1 Standards allows Liverpool to transparently share information with suppliers and seamlessly transition from barcodes to RFID technology.
- Liverpool's suppliers now have visibility of their products as they travel through the supply chain, generating value in other processes such as billing and customer care.

"EPC is a recognised global standard, which enables us to share information with suppliers in a transparent way and to take advantage of the critical mass this standard is generating."

*– Javier Méndez Trujillo
Logistics Senior Manager, Dynamic Response, Liverpool*

For more information :

Interested in learning more about this success story?
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